CHEMICAL MARKETS

RUPERT C. WATSON
Managing Editor

WILLIAMS HAYNES, Publisher

ELMER F. SHEETS
Assistant Editor

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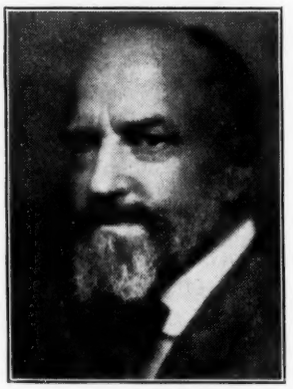
Contents for April, 1928



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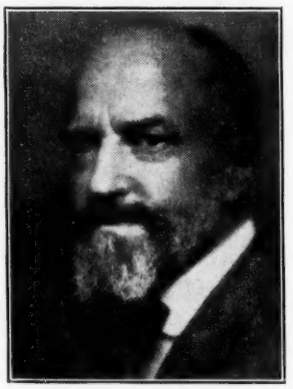

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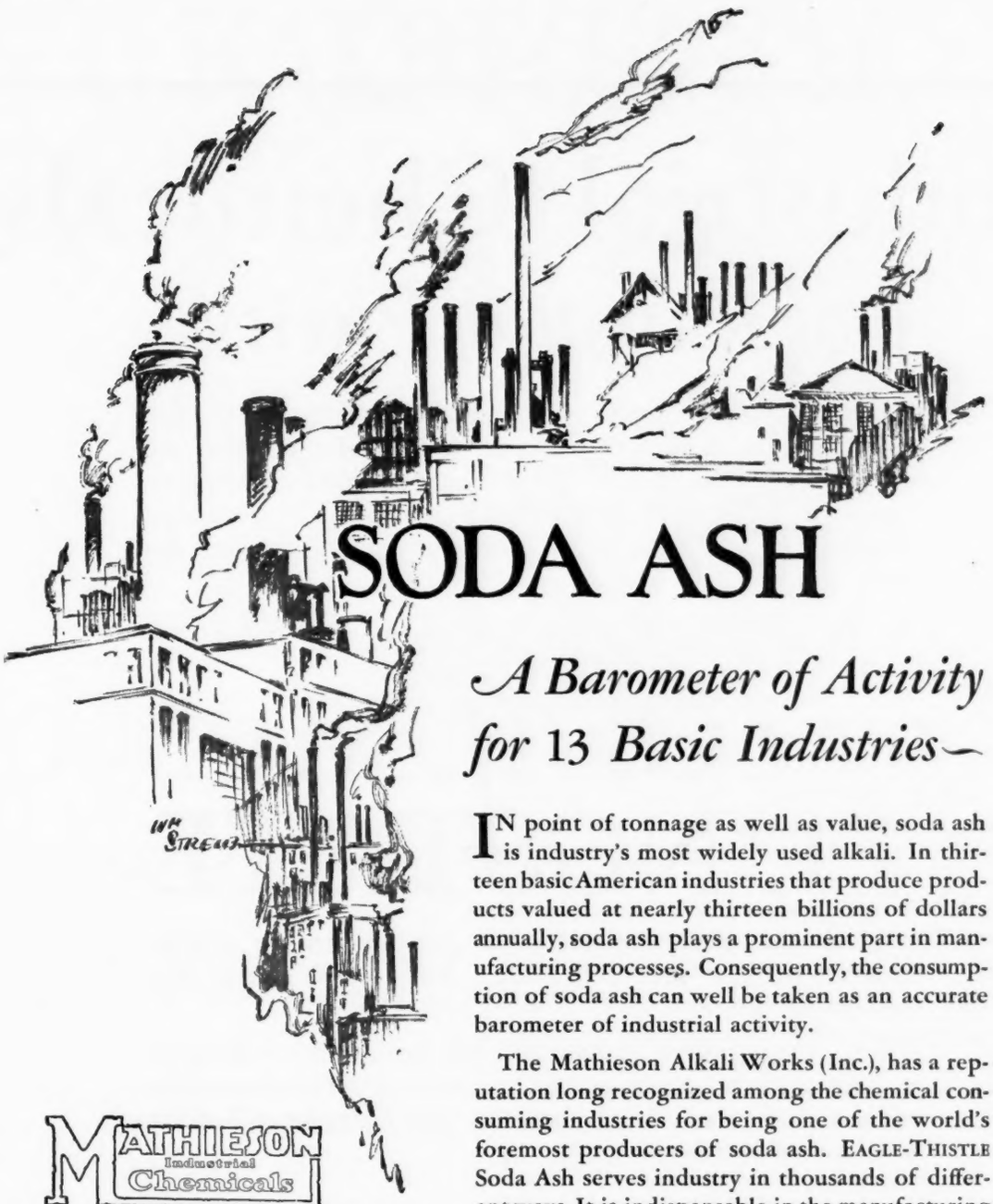

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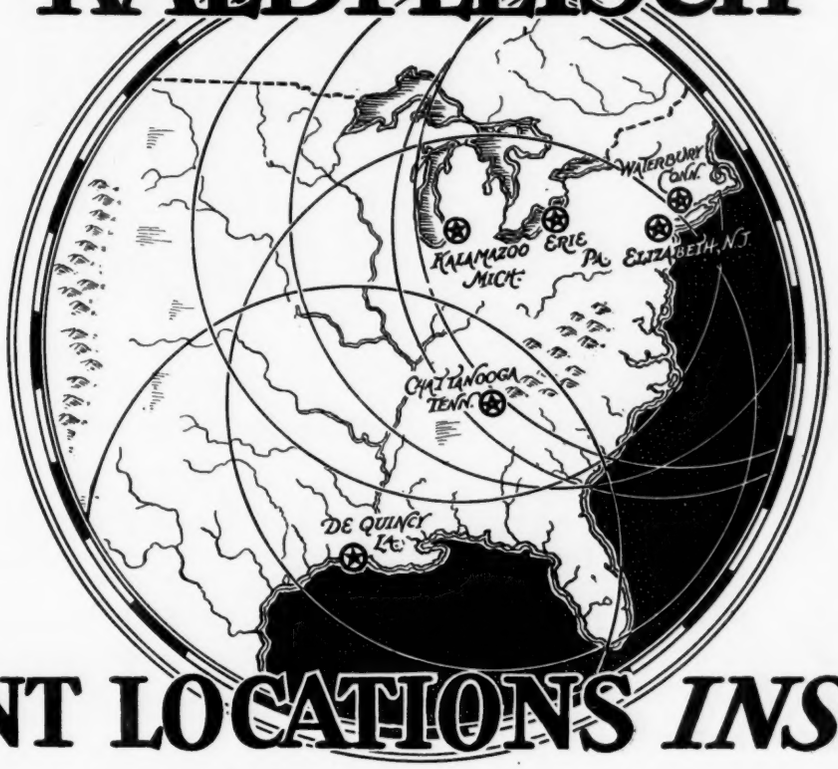

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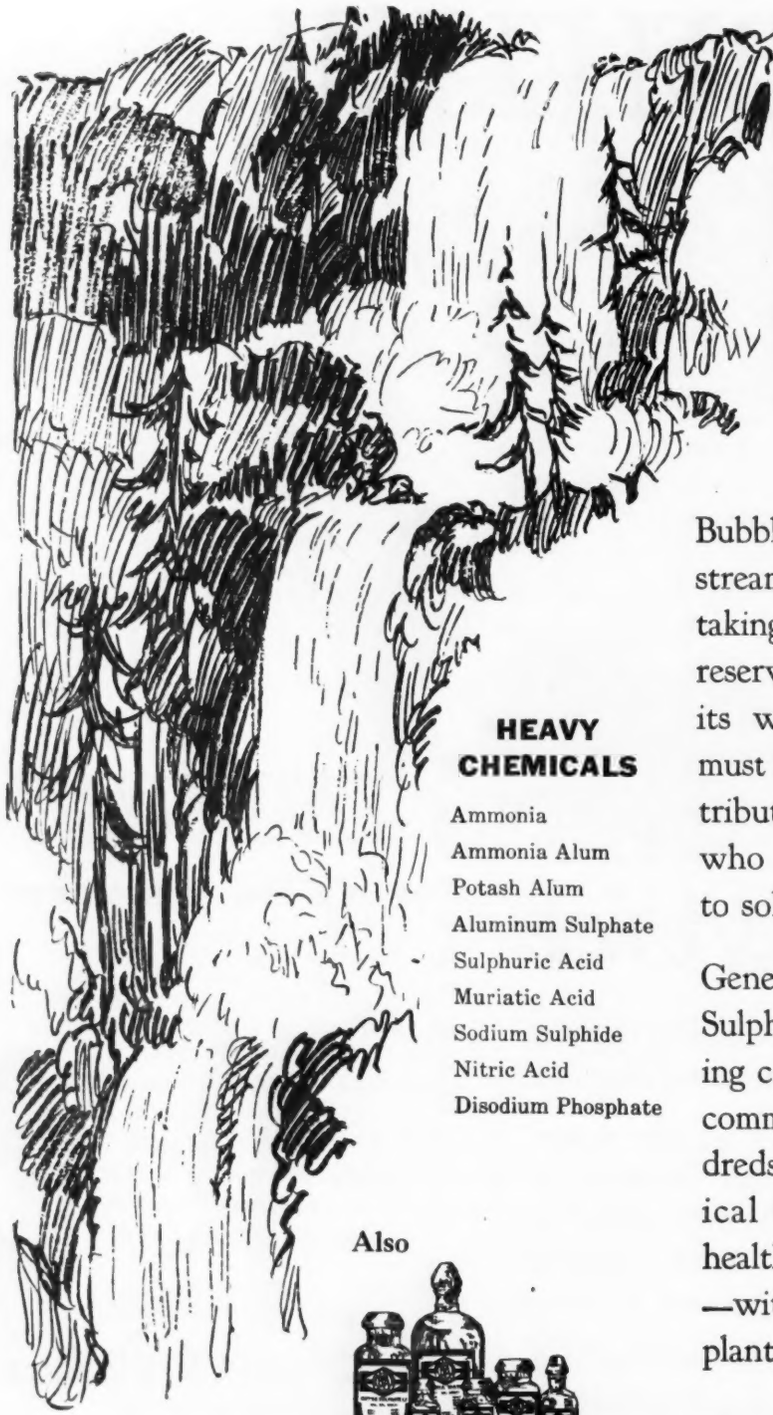

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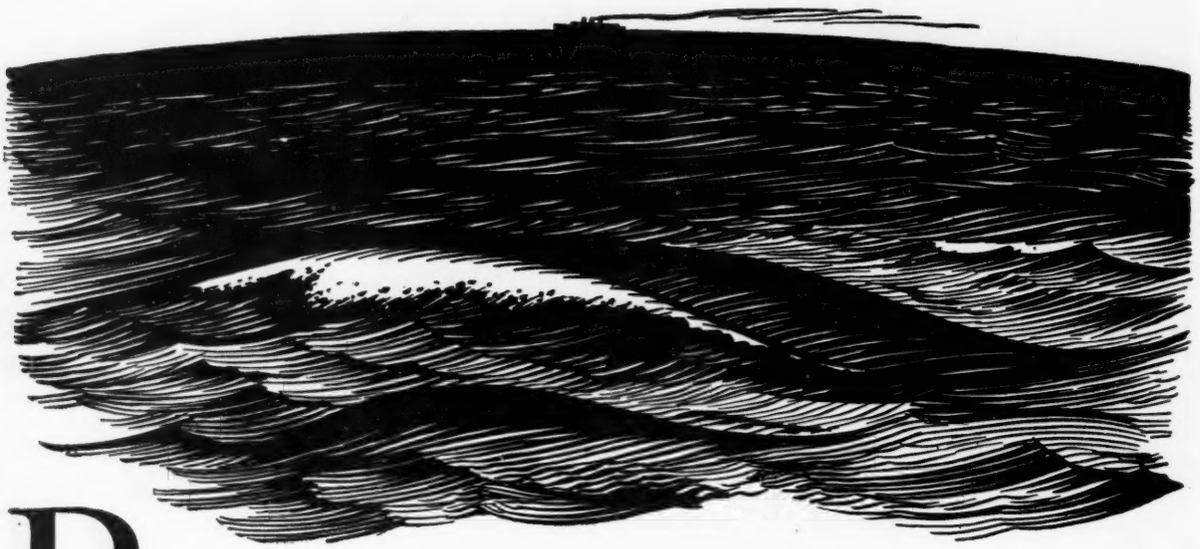

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CHEMICAL MARKETS

VOL. XXII. APRIL, 1928 No. 4.

The Major Objective

IS THE American chemical industry more concerned with the manufacture of products than with the making of profits ?

This question which has been asked recently by W. L. Churchill, an eminent industrial engineer, sounds foolish, but, on second thought, it may be quite an embarrassing question. Mr. Churchill points out that in the average industry at least ten per cent. of the profits must be reinvested annually in order to keep pace with growth and progress. If these figures are true for industry in general, they are probably too small for the chemical field. He is quite correct when he says that this new investment, no matter how it is treated on the books of the corporation, must be taken care of out of profits, and cannot be handled periodically by the acquisition of new capital. This is quite a different matter from the charging off for depreciation, and the proof of its practical importance is brought forward by the fact that the census figures of the country show that the average concern doubles its investment every ten years.

How many chemical manufacturers set out boldly and frankly to make twenty per cent. profits, and yet if Mr. Churchill's contention is correct, half of such profits would have to be reinvested and an eighth would go to the Government for taxes, which would leave a net of seven and one-half per cent. for stockholders and owners. These thoughts are a little disturbing in view of the insistent emphasis which is continually being placed in all chemical fields upon big production, and, while there is no doubt but that large scale, continuous operation of a chemical process is the most economical, nevertheless, it availeth a manufacturer nothing if he does the biggest gross business in his field and shows the lowest net profit. Such a firm is not unnecessarily cutting prices, for heavy overhead, big inventories, excessive selling costs, and too liberal terms of credit to customers will all of them bite seriously into the right side of the balance sheet. "What price business ?" may be a very unkind question to ask the Sales Manager; but the Treasurer knows the right answer; and the real meaning of that answer needs to be interpreted in the terms of what is the object of doing business.

Quantity Discounts

Discounts for quantity purchases have a very natural tendency to correspond to the customary trading units—so much per pound, less by the hundredweight, still less by the ton; or on another scale, so much for the bag or drum and less by the car or the tankcar. Packing, storage, transporting costs of all kinds break sharply at these points, and it is widely agreed that discounts based on these units are fair. It is moreover, trade custom to give discounts on three, five, ten, sometimes on fifty and a hundred units of bags, barrels, or drums of many chemicals. The custom is not uniform, but it is quite common and widely recognized. Almost as well recognized, but seldom announced openly and always subject to variation is the big quantity discount to the big contract customer.

The growth of the country and the tendency toward industrial consolidations both work to make big consumers of chemicals bigger, and this concentrated buying power becomes each year a greater part of the market. It has indeed reached a point where it calls for some better definition of the very large quantity discount in the sales policy of the chemical industry. There are three alternatives.

First, the carlot may be considered the maximum unit, and quantity discounts may be cut off sharply at this point. From consideration of packing and delivery costs this is logical; but it costs less per car to sell a hundred carlots to one customer to be delivered over a year than to sell five cars each to twenty buyers. Furthermore, the big consumer is a friend of mass production with its reduced overhead expenses. These arguments he presents most persuasively in his bargaining, and he backs up his demands by what is more than an empty show of force. Second: the large discounts may be tacitly recognized and granted secretly, as the result of individual negotiations. Such a policy appears to be to the seller's advantage, since theoretically at least, all big buyers will not receive the "best price," but so good a secret cannot be indefinitely kept, and hidden prices always place sharp weapons of distrust and competitive bidding into the hands of unscrupulous purchasing agents. Third: a schedule of quantity discounts on carlots can be openly announced.

This policy commends itself for its fairness and directness. It would cause less dissatisfaction among smaller buyers and, if maintained, would satisfy big consumers. Its danger lies in that it sets up as a target the rock bottom price which shoppers would aim at and it would extend the evils of indirect price cutting by means of mixed shipments and delayed deliveries.

None of these alternatives is ideal, and as always their faults wax and wane with the weakness or strength of the market situations. In the long run probably the last is least objectionable to both parties to the sales contract. The present status of the quantity discount is altogether too wobbly when we consider the growing basic importance of big business to our chemical producers, and it is high time that the leaders of the industry made a determined effort to strengthen these market foundations.

Chemical Safety

It would be quite a pardonable error, not only for only among the uninitiated but also for those in touch with the workings of the chemical industry, to assume that employment in a chemical plant is a more hazardous occupation than in many other industries—notably the food or wood working industries.

That such an assumption would be an error is backed up by a statement which appears in a March issue of *Time*, enumerating some very enlightening facts on this ever perplexing question.

The National Industrial Conference Board recently conducted a study among some 1,725 establishments employing 1,221,094 persons in the 15 major industries of the country, in an effort to determine which is the safest, which the most dangerous. The findings of the Board shows the textile industry to be the safest, with chemicals in second place. A total of 31.48 accidents per 1000 workers for a year is the record of the textile group in leading the list, with a range to 184.76 accidents per 1,000 workers for a year in mining, established as the most dangerous of the industries under survey.

The full list of industries enumerated by order of safety is as follows: textile, chemical, cement, automobile, food, power press work, petroleum, rubber, public utilities, paper and pulp, quarries, construction, packing and tanning, wood-working and mining.

Surely this survey is comprehensive enough in its scope to establish beyond a doubt the fact that the chemical industry, though commonly regarded as quite hazardous, is well toward the fore in the ranks of the safer of our present day manufacturing enterprises, through the expenditure of considerable time and money on propaganda and safety devices.

Better Business

Whether it is the cheerful prospect of the early adjournment of Congress; whether the booming stock market of last month; whether the coming of the robin and crocus; whether the constantly improving chances that Hoover will be the Republican nominee; whether the carloadings, or the wheat planting, or the bank clearings, or the mail order sales, or the discount rate, or the price of hogs, or the unfilled steel orders—whatever the cause or reason there is no doubt that chemical business has stepped upwards and onwards during the past thirty days. The whole of 1928 has been creeping ahead of the corresponding period of 1927, and the significant reports from our local correspondents—especially in New England and the Middle West—confirms the revival of chemical sales. This is a splendid indication that the country's industrial position, taken as a whole, is improving.

Chemical competition is altogether too keen to allow prices to rise generally, but save for such items as borax, the coal-tar solvents, oxalic acid, and others in exceptional or peculiar conditions, the price tone is firmer. There have even been a few advances, but the better business will have to prevail for some time and become even better before price levels will advance. But better business will relieve the competitive pressure, reduce stocks on hand, insure that an adequate production program may be reasonably maintained.

An Alcohol Merger?

Rumors persist in the trade of a contemplated merger in the alcohol field. It is true that nothing in the way of a definite announcement has been made at the time of going to press, but these reports have been so persistent that one cannot but think of the old adage "Where there is smoke, there is fire."

There reports have it that the merger is backed by a mid-west group, which will eventually come into control of three distilleries, one in its own territory, another in the New Orleans district and a third on the Atlantic Seaboard. It is also said that one or possibly two companies, closely allied to the alcohol industry, will be included in the reported merger.

These stories are not causing any particular concern on the part of the alcohol producers not included in the reports, for on the surface the negotiations appear to have as their ultimate aim the amalgamation of several small factors into one large unit, and such a procedure could hardly be distasteful to other producers, for this move would have the advantage of eliminating several factors from a field which has not been blessed with too stable conditions in the past.

The pages on the preliminary report on the Census of Dyes, recently released by the United States Tariff Commission, are studded with tributes to the progress made by the dyestuff industry in this country since the days of the War. It is an established fact that dyes of domestic manufacture cared for 94 per cent. of American requirements last year, this alone telling more than could volumes written on the subject.

The American production of 95,000,000 pounds for the year was an increase of 8 per cent. over 1926, one of a number of reasons why there is cause for a general feeling of satisfaction at the developments of the year just past. Other milestones on the road to stablization and independence from outside sources are the continued recessions in price which to-day average less than half the prices prevailing in 1920; increase in the sale of fast dyes, an expression of confidence by the consuming public in this type of dye; a broadening in the scope of the types of dyes manufactured; reduction in the number of domestic manufacturers indicating a further trend toward standardization and probably most important of all a decrease in the total volume imported and increase in exports.

The publication of these facts and figures is an annual tribute to those who labored tirelessly for proper dye legislation, in order that the industry might be given the encouragement needed to place it on the plane which it has attained to-day.

Following an investigation started at the request of three American manufacturers, President Coolidge has issued a proclamation increasing the import duty on barium carbonate from one cent a pound to one and one-half cents per pound.

Because of the low price which has prevailed for barium carbonate, importers have enjoyed the lion's share of American business. It is a bit early to state what effect this ruling will have on either the imported or domestic manufacturers business, the only action to date being an advance in the imported price to correspond to the increase in duty which becomes effective April 25.

They Say:——

Chemical processes not infrequently exhibit remarkable earning power, of which a spectacular example was given toward the close of last month when Courtaulds, Ltd., declared a 100 per cent. stock dividend on its common shares which have a par value of 12,000,000 pounds Sterling. It is interesting to recall in this connection that less than 25 years ago the U. S. Viscose patents were sold at auction for less than $2,500. — *Arthur D. Little, Daily News Record, March 17.*

It is not enough to find new uses for a product. True, the mere announcement of such discoveries will create some demand. To make the most of the mutual opportunities which discoveries offer to the producer and to the new user it is necessary that the former use every possible effort to make known to the latter how he can share in the benefits. — *O. P. D., Feb. 27, '28.*

Scientific zeal and industrial enterprise are shown to be in very close alliance in the attainment of these results, and if it is maintained no limit can be set to the achievements of chemical science and industry in the next half century.—*Chemical Age, Feb. 25.*

It seems to me that the great work America has done is to take science and invention wherever she finds them and put them to practical benefit for the man who works.—*Jas. J. Davis, Monthly Labor Review, February.*

There has never been a period in the history of American business, and in the world affairs when the strength and power of unified effort have been more apparent.—*A. D. Graves, Paint, Oil & Chemical Review, Mar. 1.*

The prosperity of America, and the productivity of her customers set in motion the current of international trade with far-reaching effects.—*Journal of British Chamber of Commerce in U. S., February '28.*

Every new discovery made, and every new method developed can be at once applied in fields of science apparently remote from the original one.—*Chemical Age, Feb. 18.*

The old method of trial and error has given away to the more modern methods of scientific research.—*Paper Trade Journal, March 7, 1928.*

One cannot too strongly urge that the industries so dependent on chemistry and the chemical industry should realize their related position, and the chemist and the chemical manufacturer should, in turn, appreciate that the chemical industry, so-called, is extremely embrasive, has a great many problems and objectives in common and should be a much more closely knit group than is the case at present.—*Ibid, Feb. 23.*

One has only to look at the many samples of coal-tar by-products to realize what the chemist has done for civilization in converting waste into products of high utility and value.—*Chemical Age, Feb. 25.*

The spirit of science invites us all to seek for new knowledge, to collect it, and to find ways and means of using it.— *Henry Buins, American Dyestuff Reporter, Feb. 20.*

This is the chemical age. The United States is the world's greatest producer and greatest consumer of chemicals.—*Paint, Oil & Color Review, Feb. 23.*

In the coming national campaign, tariff will be made a leading issue.—*Fibre & Fabric, Mar. 3.*

Ten Years Ago

(From "Drug & Chemical Markets", April 1918)

Six German owned worsted mills in New Jersey, with a total valuation of more than $70,000,000, have been taken over by the Alien Property Custodian, who has named governing boards of directors to assume control.

Subscriptions to Third Liberty Loan in New York district include $1,500,000 from U. S. Industrial Alcohol Co.; $382,000 from Chas Pfizer & Co.; $250,000 from Barrett Co. and $100,000 from American Dye Works Co.

American Dyestuffs Manufacturers' Ass'n announces that no companies having affiliations with concerns in countries now at war with the United States shall be eligible for admission to the Association.

Powder companies have placed an order for what is understood to be 3,000,000 proof gallons to be divided equally between U. S. Industrial Alcohol Co. and Distillers Secruities Corp.

Rhodamine B is being manufactured in America in limited quantities, according to advices received from Dr. F. Frank of the Catalytic Chemical Co., West Berkeley, Cal.

The Government has issued instructions to domestic quicksilver producers to hold subject to Government requirement a tentative 40% of their total output.

Powers-Weightman-Rosengarten Co. is receiving congratulations on the celebration of its completing 100 years in the manufacture of medicinal chemicals.

Butterworth-Judson Corporation, Newark, N. J. is considering plans for the immediate reconstruction of its buildings recently destroyed by fire.

President Wilson has signed the Webb export bill which permits combinations of exporters in promoting trade in foreign countries.

Central Dyestuffs & Chemical Co., Newark, N. J., plans construction of a large new addition to its plant.

WASTES

In Chemical Marketing Methods

By G. Rowland Collins

Professor of Marketing, School of Commerce, New York University

THE present has been aptly called the "Age of Distribution," because for the first time, wide attention is being focussed upon the problem of marketing or distributing products. It is a new era of curiosity and exploration with respect to that part of the economic process which is concerned with how to market profitably and economically what industry produces. Economists, trade associations, and governmental agencies have begun to devote time and money to studies of the economy of modern marketing. Progressive, shrewd business executives are everywhere eagerly, even frantically culling books, magazines and special reports to devour published comment on such subjects as: "The Rise of Marketing Costs" and "Costs of Sales—The Log Jam of Modern Marketing." Indeed, the topic of economical and profitable market—distribution is rapidly becoming the principle theme of business—convention oratory.

A lust for information bearing on the cost of distribution has brought about a general research by executives in all branches of industry during recent years into this subject, the importance of which is daily becoming more universally recognized.

Consistently and continually, two assumptions are expressed either directly or indirectly: first, that distribution costs are excessively high and, second, that the reduction of distribution wastes is the most serious business problem of the moment and of the immediate future.

Scanty and meagre as is the available statistical data with reference to distribution costs, it seems unquestionably to support the soundness of the first assumption, and to suggest the reasonableness of accepting the second as a logical conclusion.

Recently, too many chemical manufacturers have witnessed their costs of distribution increase their total costs faster than their production economics have been able to reduce these total costs. Many have already experienced a period of profitless prosperity or see one just ahead. In so far as these increases in the costs of distribution result from controllable and preventable marketing wastes, there is little excuse for them. They indicate a serious and dangerous state of business inertia.

Moreover, the professional economic reformer is always ready to seize upon and to capitalize any confusion of preventable wastes with necessary costs. He sees competitive selling efforts demand a larger and larger share of the consumer's dollar and he proceeds to condemn such modern marketing practices as consumer advertising on a national scale, missionary sales forces, et ectera. The publication of such bitter thrusts at modern distribution as are contained in Mr. Chase's "The Tragedy of Waste" and Messrs. Chase and Schlincks' "Your Money's Worth" are increasingly common.

Such attacks on distribution even though empirical in the main, must necessarily crystallize vague notions and predilections concerning the possibility and desirability of a *functional* society. We are at present living in an *acquisitive* society under a money economy. No matter how opposed the thinking business executive may be to the proposition that the present socio-economic order should be exchanged for a purely functional society or to the proposition that social and economic organization such as we have at present can and will grow into a functional society by "insensible gradations, necessitating no economic crisis at all," one fact seems indisputable. Unless the wastes and costs of distribution under our present system of society are studied scientifically, the demand for socio-economic reform will be greatly augmented and enhanced. More than likely this demand will make itself felt in political action which

will bring about a centralized governmental regulation and control of distribution which will approach, at least, the conditions of a functionalized society.

Source of Biggest Waste

To be sure, this whole question of marketing wastes and increasing marketing costs as a cause of profitless prosperity has been felt more particularly by the manufacturer and distributor of packaged and branded consumers' goods than by the manufacturer and distributor of bulk and unbranded industrial goods or fabricating materials. Then, too, most of the criticism of distribution by crusading reformers has been directed against the economic wastes in the practice of marketing consumers goods rather than in the marketing methodology of the maker and distributor of fabricating materials. Nevertheless, a general examination of possible economic wastes in marketing is helpful in suggesting "pitfalls" which are common to the manufacturers of both of the foregoing classes of goods. It may help, also, to indicate the type and direction of the marketing efforts which seem important to the manufacturer of chemical products.

Obviously, excessive costs of distribution, wherever and whenever they exist, will be due to three principal types of wastes:

1. Economic wastes in marketing inherent in the very operation of a system of "free and unrestricted" competition,
2. Economic wastes in marketing caused by an overbalanced attention to production as an end in itself.
3. Economic wastes in marketing caused by marketing mismanagement in the planning, use and control of personal salesmanship and advertising.

These wastes need to be separated, particularized, and analyzed.

Non-Controllable Wastes

The first type of economic waste in marketing is hardly controllable or preventable except through governmental limitations legislatively imposed upon the exercise of free competition. Economic wastes due to an excessive number of middlemen or to an unnecessary multiplicity of distributive agencies are wastes inherent in the competitive system. They are not preventable; they are incidental to the evolution of the distributive system. They prove to be temporary in the main, since unnecessary middlemen and agencies tend to disappear. Unfair trade practices, also, are inherent in the operation of the competitive system. They, too, are hardly preventable or controllable except through restrictive legislation.

Making vs. Marketing

The second type of economic waste in marketing, however, is preventable and controllable in a large degree. Production, using that term in the sense of "making" as opposed to "marketing" is not an end of business effort in itself. Producing chemicals faster than they can be handed on through single or successive sales to users inevitably results in excessive costs of distribution. In such cases the cost of finding or creating new markets or of forcing old markets generally counterbalances any new savings due to large-scale-production. If the low unit cost of production theory makes a manufacturer overplay his hand to such an extent that he must spend more to sell his goods or to sell at lower prices to move his output than his competitors do, his total cost situation is not necessarily improved. Efficiencies in manufacturing which are not evaluated in terms of the determined possibilities of user-sales may throw an impossible task on a very efficient marketing department.

Chemical Overproduction

In the making and marketing of chemicals, the major business emphasis is placed upon turning out a good product of absolutely uniform quality at the lowest possible manufacturing cost. The constant effort of the chemical industry is so to control raw materials and processes as to secure maximum production at minimum cost. This emphasis is necessary to meet competition since price is such an important factor in the sale of chemicals and since most chemicals are well-standardized in quality. But therein lies a possible business pitfall. Nor does this danger lie in intensive efforts to control the manufacturing operations in the interest of standard quality, in the improvement and use of more accurate control methods to make sure that manufacturing operations are run under exactly the same conditions at all times. It lies rather in efforts to reach certain levels of quantity production for the sake of reducing manufacturing costs per unit without just regard for market possibilities and potentialities. Too much optimism and too little market analysis and forecasting in advance of a contract season all too often result in laying out a production schedule which very soon pulls the manufacturer up short in the face of a genuine dilemma. To decrease production will mean giving up production savings per unit. To continue production will mean increased sales costs and the receipt of lower prices.

The Chemical Cost Base

Because supply and demand control prices more directly and more promptly in the case of standardized materials for industrial use, such as chemicals, than they do in the case of consumers goods, low total costs are most important to the manufacturer of this type of goods. Low total costs depend upon a firm dual foundation of efficient distribution as well as of economical production. Moreover, the extent to which low manufacturing costs per unit as a consequence of quantity production will contribute to low total costs depends upon the accurate determina-

tion of marketing possibilities carried back from and through distribution to production, and the resultant correlation of quantity-production schedules with market possibilities.

Research, analysis, and forecasting with respect to sales possibilities are, then, vitally important to the manufacturer and distributor of chemical products. Where such is not now the case, research departments must be developed along broader lines than those of strictly chemical or technical research.

Factors in Demand

Quantitative market possibilities need to be carefully estimated. The relative possibilities of contract and spot sales need to be weighed and judged as component parts of sales totals. Qualitative factors which may influence quantity demand need also to be watched with great care. New processes, new synthetic products of a substitute nature, new fabricating uses for old, established products, these factors as well as many others must be examined constantly in the light of their effect on demand. The conditions and desires of the buying consumer and, in particular, any change in preferences of the user must be on top constantly in the research department. Take, for example, such a shift as the growing preference for liquid chlorine as against bleaching powder on the part of the pulp and paper trade. Such shifts need to be evaluated consistently and continually in order that changes in demand may be anticipated and production allowances may be made.

Wasteful Sales Efforts

But what of the third type of economic waste in marketing? Economic wastes due to mismanagement in the planning, use, and control of personal salesmanship and advertising are inexcusably preventable and controllable. While, in the aggregate, these wastes are probably not so responsible for the increasing seriousness of the chemical distribution problem as the second type of wastes, still, in many individual instances, they are costly, quite apart from expensive and wasteful burdens laid upon the marketing department by a desire for mass production.

The perils of careless sales campaigns are obvious; they allow the marketing dollar to loaf and grow fat. The persistence of rule-of-thumb procedure in marketing methodology is still pronounced, and unfortunately so, in the cases of many manufacturers of standardized fabricating materials. Too many marketing executives still proceed upon cases. They attempt to adopt and to apply marketing methods which have been successfully employed by some other company regardless of an analysis of differences and likenesses. The engineering mind needs to be applied to marketing method in order so far as is possible to substitute true science for guess, imitation, and rule-of-thumb.

The manufacturer and distributor of chemicals, like most manufacturers of industrial raw materials, depends, in the main, upon the efforts of a personal sales force as a marketing method, and that is the very reason why he should give a great deal of attention to the problem of scientifically determining whether or not other methods of selling can make the work of the sales force more economical and more effective. If salesman are now selling only one prospective buyer out of ten called upon, it may be that more scientific methods of selecting buyers as prospects for salesmen are necessary. It may be that a certain percentage of non-buyers can be turned into prospective buyers by the proper and scientific use of business correspondence, advertising, telephone, and telegraph.

Helping Salesmen

The selling policy of an individual company may be to attempt to make a sale once out of every ten calls, and to encourage every salesman to call on as many prospects as possible. By using other methods of selling as an aid to personal salesmanship, it may be possible to reduce the number of fruitless calls and to allow twenty-five salesmen to do the work of fifty. Moreover, in the case of regular buyers as well as of prospective buyers, the use of supplementary methods of selling may cut down the frequency of calls which is necessary without these supplementary methods. In other words, more analysis and more selection applied to selling methods may possibly produce an equal or greater volume of sales at a lower selling cost. Because chemical products are standardized and because they are purchased to meet fabricating requirements, the chemical manufacturer would do well to experiment with the selling methods of business correspondence, direct-mail literature, telephone, and telegraph.

Analyze the work of individual salesmen in order to decrease the non-productive time of the salesman, and to find uses for this so-called non-productive time. Salesmen may be trained to use non-productive sales time in the service of market research; they may scout probable dates when prospective buyers may be in the market for contract purchases, et cetera. Compensation plans may be devised and applied which will provide definite rewards for scouting, missionary, field investigating, and other work done by the salesman in his so-called non-productive time.

Sales Cost Analysis

Generally speaking, any manufacturer or distributor will be repaid by taking each part of his marketing fabric, and gauging it with persistency and relentlessness. In spite of the importance of analyzing sales costs, a recent survey conducted by the United States Bureau of Foreign and Domestic Commerce shows that while 73% of the replying firms were endeavoring to reduce production costs, only 29% were attempting to cut sales expenses. It would seem that the manufacturer who realizes the importance of cost and waste surveys as applied to marketing may

well secure for himself some decided competitive advantages.

How to Reduce Costs

While the manufacturer of chemicals cannot with profit make much use of some marketing methods used by the manufacturer of consumers goods, he can and should make use of market research, market analysis, market forecasting, and scientific marketing planning and control. Specifically he can certainly aim at the application of the principles implied in the following summary:

1. The breaking of the sales territory into units and their individual measurement as to market potentiality.
2. The parallel breaking down of the sales operation into its basic form—a species of time study.
3. The setting up of averages—both as to territory potential and sales operating results.
4. The creation of an ideal standard operation and a standard sales unit.
5. The multiplication of this unit as many times as is necessary to accomplish the task.

At a special meeting of the Societe Alsacienne de Produits Chimiques, December 22, 1927, it was decided to continue business operations of the company, to employ the general reserves, amounting to 7,000,000 francs for purposes of competition and amortization of losses, and to reduce the capital from 50,000,000 to 10,000,000 francs, and in consequence to replace the 500,000 nominal shares of 100 francs by 100,000 nominal shares of 100 francs each, according to Assistant Commerical Attache D. J. Reagan, Paris.

In its annual report, the administrative board states that after the cession of the Mulhouse plant, the company concentrated its efforts on the production of synthetic camphor. Satisfactory results have been obtained from tests made at the Vaugouin plant, and the company has acquired the license rights for this process.

The company is now planning to begin production of synthetic camphor on a large scale, and to extend the volume of its present production, as well as the manufacture of products which the company's laboratories have already tested, or which will result from investigations now being conducted. President Rouland stated that the company has perfected the production of colloidal sulfur, both liquid and pulverized, as well as colloidal graphite in water or in oil. The production of different pharmaceutical products, such as pepsin and pancreatin will be started this year.

The problem of Muscle Shoals continues to occupy those of the nation's legislators not engaged in investigations. It remained for the House Military Affairs Committee to deliver the master stroke. It voted down by large majorities, all pending bills for development of Muscle Shoals. The Norris bill, adopted by the Senate and representing results of seven years of effort and compromise, was magnificently disregarded by a vote of 17 to 4. The Madden bill, providing for lease of project to American Cyanamid Co., New York, received less harsh treatment, but was defeated 13 to 7.

Who's Who In Chemical Industry

Crane, Jasper E., president, de Pont National Ammonia Company. Born: Newark, N. J., 17 May 1881; mar., Olive E. Crow; children, 3 daus.; educat., Princeton Univ., A. B., 1901, M. S., 1904, Mass. Inst. Tech., 1903-04. Address: du Pont National Ammonia Co., du Pont Bldg., Wilmington, Del.

Derby, Harry Leigh, president, The Kalbfleisch Corp. Born: Afton, N. Y., 3 July 1882; mar., Alice Maud Fisher, Bklyn., N. Y.; children, 1 son, 1 dau. The Casein Mfg. Co., traffic mgr. & sales mgr., 1900-13; The Kalbfleisch Corp., in various capacities, 1913 to date. Pres. of Kalbfleisch Corp. of Del. and Mich., Kalbfleisch Bauxite Co., Inc.; Crown Chem. & Color Corp. Author of book, "Industrial Traffic Dept., Organization, Management." Clubs: Chemists, Natl. Republican, Traffic (former vice pres.), Upper Montclair Country (trustee), Montclair Ath., Oadkale Country (Rumford, Me.), Kalamazoo Country, and Park (Kalamazoo, Mich.), Masonic Frats. Hobby: golf. Address: Kalbfleisch Corp., 200 Fifth ave., New York City.

Kaplan, Philip, chief chemist, Richards Chemical Works. Born, New York City, 5 Sept. 1888; mar., Sadie Goodman, 16 Apr. 1912, N. Y. C.; children, 3; educat., pub. schl., high, Polytech. Inst., Bklyn., B. S. 1914. Public Service Comm., chem., N. Y. State, 1913-15; Reliance Aniline & Ch. Co., Poughkeepsie, N. Y., supt. 1916-21; Richards Chem. Wks., & Onyx Oil & Chem. Co., Jersey City, N. J., chief chem. 1921 to date. Memb., Amer. Chem. Soc., Polytech. Alumni, Masons (lodge & club). Hobbies: radio and motoring. Address: Richards Chemical Works, 190 Warren st., Jersey City, N. J.

Kaufmann, Herbert M., vice-president, Mutual Chemical Company of America. Born, Phila., 1870; mar., Lillie Hagedom, Phila., Pa., 1899; children, 2; educat., Univ. Pa., B. S., 1888, Univ. Basel, Ph.D., 1891. Mutual Chemical Co. of Amer., gen. mgr. 1908 to date. Clubs. Chemists, Univ. Pa. (N. Y.), Harmonie, North Shore Country. Address: Mutual Chemical Co. of Amer., 270 Madison ave., N. Y. C.

Loughlin, James Francis, plant manager, Eastern Alcohol Corporation, Kentucky Alcohol Corporation. Born, Stoneham, Mass., 17 Dec. 1894; mar., Mary Rogers Bruner, N. Y. C., 16 Apr. 1926; educat., Norwich Univ., B. S., 1920 grad. course, Harvard Grad. Schl. Bus. Adm., 1921-22. Natl. Distillers Prods. Corp., Peoria Ill., & Louisville, Ky., plants 1922-26; Eastern Alcohol Corp., & Ky. Alcohol Corp., 1 Nov. 1926 to date (Carney's Point, N. J. plant). Instr. Harvard Univ., R. O. T. C., May to Aug. 1917 2nd Lt., 59th Inf., 4th Div. Instr. Army Anti-aircraft machine gun schl., France, Oct. 1918-1919. Memb., Amer. Chem. Soc., Theta Chi Frat., du Pont Country Club. Hobbies: golf, rifle and pistol shooting. Address: Eastern Alcohol Corp., P. O. Box 746, Wilmington, Del.

Masters, Carl Luther, plant manager, Elko Chemical Company. Born, Fryburg, Pa., 25 July 1890; mar., Emma Cecile Bradford, N. Y. C., 19 June 1922; children, 2 sons; educat., Whittenberg Coll., 1907-09; Cornell Univ., B. S., 1914, Post Grad. 1914-16. Heller & Merz Co., Newark, N. J., supt. chem., 1916-20; Southern Dyestuffs Co., gen. mgr., 1920-23, pres. & gen. mgr., 1923-27; Elko Chem. Co., plant mgr. 1927 to date. Nitro Bd. of Educat. Memb., Sigma Pi, Amer. Chem. Soc. A. F. & A. M., Royal Arch, Cornell Club (N. Y.). Hobbies: fishing, hunting, radio, philosophical literature. Address: Elko Chemical Co., Nitro, W. Va.

The Best Use of

SALESMEN'S REPORTS

A Survey of the Whys and Wherefores of Modern Information Service in Chemical Selling

By Elmer F. Sheets

"WE hire our salesmen to sell, not to make reports." Once upon a time there was a sales-manager in the chemical industry who said this and meant what he said. He got results and felt quite superior to new-fangled ideas about selling. He had been "in the game" for years and knew what he was talking about. His was the last word.

For a while, everything ran as per schedule. His house was a good one, chemicals and prices were right, deliveries were prompt, and technical service was efficient. His salesmen were the type that knew each buyer like a blood brother. They could cover their territory blindfolded and sign all the business in it. Competitors were starving to death. He was a great sales manager. And the only blanks his salesmen filled out were order blanks and expense accounts.

Then, suddenly, things began to happen. One salesman died, another went with a competitor. a third formed his own business, a fourth retired on an inheritance, and a fifth married a wife with money. All five had covered strategic, keynote territories. He scurried around and found new men to take their places. These new comers were good salesmen, but they did not know the buyers or territory. They had nothing from which to start. They could not take up the business where the others had left it. They had to start all over again, because their predecessors had been hired to sell, not to make reports. The business gradually diminished and was only prevented from disappearing altogether by the valiant efforts of the sales manager. His competitors dominated the situation. And then he took up salesmen's reports.


Form 225-20M 7-27
[redacted]
NEW YORK CITY
SALESMAN'S DAILY REPORT
Telephone Call
Dated at (P. O.)
Town | State | Trade
Name | Buyer
Affiliated with
Products used and annual consumption of each: Product | Tons per annum
How buying from; Price now paying and date present contract expires: Name | Product | Price | Cont. Expires
Sold / Quoted: Quantity | Product | Test | Pkgs. | Price | Basis | F. O. B.
Date will be in market again | Date should be called on again
Special Instructions regarding direct correspondence, etc.
Remarks
I expect to leave here at | M. for
Telegram will reach me at | On (give day)
NOTE—Mail Original to Home Office. Mail Duplicate to Branch Office. Make out this report daily.
Salesman

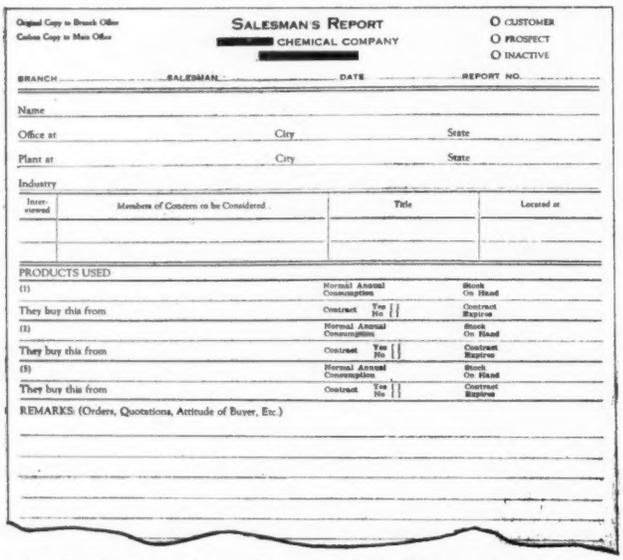
This salesman's daily report, regarded as quite complete, indicates that this company has left no stones unturned in its effort to secure data for future reference.

To-day that sales manager and his contemporaries throughout the industry have made the subject of salesmen's reports an exact science. This, of course, is not overnight development. The form on which the report is made, the manner in which that report is rendered and the way it is used, all have been evolved out of years of study and experience. But the results, in most cases, are effective and a credit to industry.

The Best System

Although each sales manager feels that his system is unique and the best in existence, the fact remains that all are practically the same. The differences existing between the various methods now in use

are slight and only numerous enough to prove the rule. Stripped of all refinements each system is based upon the salesman's daily report on each individual call. This report in each case contains every significant fact concerning the firm upon which the call is made. Just what are considered significant facts will be discussed later, but in a general way, the report gives the sales manager a picture of that particular account, and when combined with other reports, a picture of the entire territory. He knows the condition of each buyer's business, what he is buying, from whom he is buying, and at what price he is buying. He knows the buyers' present and


Original Copy to Branch Office
Carbon Copy to Main Office

SALESMAN'S REPORT
[redacted] CHEMICAL COMPANY
[redacted]

O CUSTOMER
O PROSPECT
O INACTIVE

BRANCH ____ SALESMAN ____ DATE ____ REPORT NO. ____

Name

Office at ____ City ____ State

Plant at ____ City ____ State

Industry

Interviewed	Members of Concern to be Considered	Title	Located at

PRODUCTS USED

(1) ____ Normal Annual Consumption ____ Stock On Hand

They buy this from ____ Contract Yes [ ] No [ ] ____ Contract Expires

(2) ____ Normal Annual Consumption ____ Stock On Hand

They buy this from ____ Contract Yes [ ] No [ ] ____ Contract Expires

(3) ____ Normal Annual Consumption ____ Stock On Hand

They buy this from ____ Contract Yes [ ] No [ ] ____ Contract Expires

REMARKS: (Orders, Quotations, Attitude of Buyer, Etc.)

Another form of salesman's report which differs mainly in that it stresses a record of the products used by the buyer.

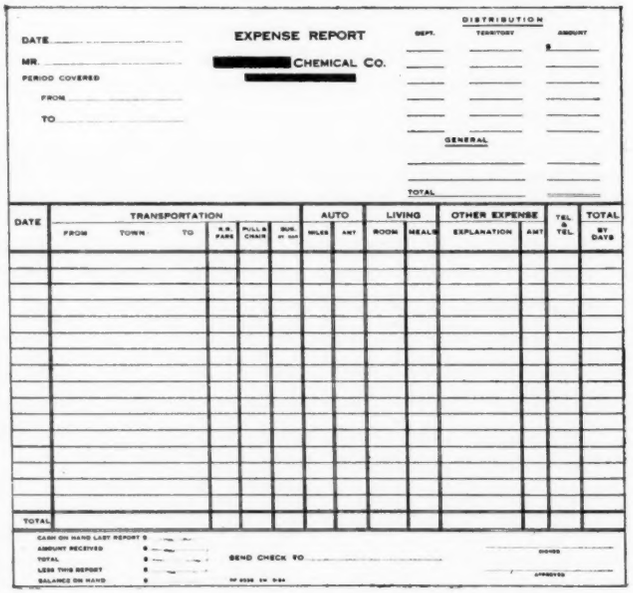
future needs, and if he is not satisfying these needs, he knows why. In the panoramic sense, he knows the business conditions of the entire country or territory, and the relation of his volume of business to that of his competitors throughout the territory. The perfection of this information system varies, of course, with the product and the variety of products handled, but in the case of at least one sales manager, his system is so thorough that he can trace ninety-five per cent. of the car-lot business, and seventy-five per cent. of the less than car-lot business, transacted throughout the country.

Using the Facts

This would not be possible without some method of correlating the facts in each report. This is the other basic factor of every system. The method varies widely in this case, but the net result is the same. Through some system of tabulation and filing, the history of every buyer or prospective buyer, every product, and every territory must be recorded. And what is most important, these histories must not only be kept, they must be kept alive.

The third essential in every system is the expense account—familiarly known as "the swindle sheet." The variations in form and use are practically negligible and may be dismissed in a few words. All are weekly reports of itemized expenses day by day. In some cases the report is made in the form of an expense book, but usually the report is made on an open sheet. Those who use the book claim that a more accurate account is kept of how the money is spent since the salesman carries the booklet with him and enters the figures as he spends the money. Those who use the open page claim that the booklet is difficult for the bookkeeping department to handle, as it becomes necessary to keep turning pages in making an accounting. Others combine both systems. The salesman keeps his daily account in a book and at the end of the week transfers the figures to an open sheet weekly report which he sends in. Whatever the form, there is generally a further tie-up with the calls that have been made. This serves as a check on the daily report and in some cases, aids in determining sales expense. In practically every case, the salesman receives a check each week to reimburse him for what he has spent the previous week. He thus has always a certain definite expense fund on hand.

It is at this point that variations begin to enter into the systems. In most cases, the matter now becomes one for the accounting department for only the total cost of selling is of interest to the sales department.


DATE ____
MR. ____
PERIOD COVERED
FROM ____
TO ____

EXPENSE REPORT
[redacted] CHEMICAL CO.

DISTRIBUTION
DEPT. | TERRITORY | AMOUNT
GENERAL
TOTAL

DATE	TRANSPORTATION FROM	TOWN	TO	A.R. FARE	PULL & CHAIR	BUS.	AUTO MILES	AUTO AMT	LIVING ROOM	LIVING MEALS	OTHER EXPENSE EXPLANATION	OTHER EXPENSE AMT	TEL & TEL.	TOTAL BY DAYS
TOTAL														

CASH ON HAND LAST REPORT $
AMOUNT RECEIVED $
TOTAL $
LESS THIS REPORT $
BALANCE ON HAND $
SEND CHECK TO ____
DRAWN
APPROVED

The form of salesman's expense report which most nearly approaches in uniformity that used by a majority of companies.

Seldom is the selling cost per man of any great value because of the differences in territory and the "missionary" phase of the salesman's work. In some cases the cost per call is important; but generally only as a factor of sales cost per territory. The other factor which is given prominence in ascertaining sales costs is cost per commodity or per department, as the case may be, depending on the nature of the business.

Those firms which do take into consideration sales costs per territory, or per commodity, or both, provide a place on the expense account where the salesman

must apportion his time, his expenses, or both. This he does as nearly as he can estimate it, and enters his figures in spaces provided alongside a list of commodities, departments, or territories, as the case may be. The home office then correlates these figures and secures the corresponding selling costs. The advantage of such an additional analysis is very practical. According to the results salesmen may be re-distributed, they may be helped to improve their time, they may be re-routed, or be taken out of a territory or commodity and that territory or commodity put in the hands of one or more jobbers. By means of a system of this sort, any item of selling cost that is out of line becomes immediately apparent, and steps may be taken to remedy that condition.

Forms and Methods

In returning to the discussion of the salesman's report proper, there are evidently two important phases to the problem. First, how can such reports be most simply made, which is largely a matter of form. Second, how can such reports be most effectively used. In an effort to avoid confusion, branch reports, weekly reports, monthly reports or any other type of salesman's reports made necessary by some exigency of a particular business, will be omitted from the discussion. All are at best supplementary to the report of each call made by the salesman.

Report forms vary considerably in details. Most of them specify exactly what the home office wants to know. Too many of them depend upon "Remarks" to cover a multitude of sins. The most elementary form encountered merely asks for date, name and address of firm called upon, and remarks. The average report in addition to those items asks: nature of business, name of buyer, products used, from whom buying, annual consumption, price now paying, in the case of contract business when contract expires, prices quoted, and special instructions regarding direct correspondence. Other items which appear on some reports are: date of next expected call; department; samples or information wanted; samples left; attitude of buyer; orders; designate whether account is prospect, customer, inactive, corporation, partnership, individual; designate whether the call was a telephone call; date will be in market again; date should be called on again; purpose for which account uses products; quantity bought from salesman's house per year; competitors buying from and why; probability of selling them soon; stock on hand; storage capacity; and credit report. When the credit report is on the salesman's report it is necessarily short, generally consisting of merely credit references; other suppliers; collections made and remarks.

Some firms have a separate form for a credit report. This is filled out by the salesman on the occasion of his first call on a prospect. The report is then filed, thus making available complete information concerning credit at whatever time the prospect places the first order. The credit report contains: name and address of firm; line of business; names, ages and habits of officers; how long in business; capital; estimated net worth; estimated prosperity; amount of insurance; amount of inventory; method of paying bills; record of fires; record of failures; banks with whom they do business; concerns from whom they purchase; affiliations with other concerns; and general remarks.

To return once more to the salesman's report itself, it is now filled out and returned to the executive office. Most firms insist upon reports being mailed the day the calls are made. Emphasis is placed upon the fact that the information contained upon the reports must be in promptly, to be most effectively used. Which leads very naturally to the question of the methods employed in using this information.

One house handles the reports in this manner. First they go to the head of the sales department who goes through them to see if there are any specific problems called to his attention by the salesman. At the same time he is informed of conditions throughout the territory. From his desk they go to the heads of the various departments, who also note whatever facts are significant as regards the commodity or commodities handled by them, and act accordingly. From the department heads, the reports are all routed to a department variously termed statistical, promotion, followup, sales control, etc. No matter what the department is called, it exists in almost every system, and its duties are to correlate the facts contained on the reports. In this particular case, the most important facts contained on the report are transferred to a card, which is filed alphabetically. by territory, by company. Not only does this card contain an abstract of every salesman's report regarding the firm, but it also contains an abstract of all correspondence with the firm. This latter feature is more or less unique. It furnishes a tie-up between the correspondence and the sales reports and thus gives a chronological running account of all the dealings between the two companies. The abstracting of information must, of course, be done intelligently and carefully or the system will be worthless. This is true because the sales reports themselves after going to this department, are filed separately as a supplement to the abstracts, and kept only for a comparatively short time.

Correlating the Facts

In another house, after going to department heads and sales manager, the report goes to the credit department and the credit information abstracted. It then goes to the correlating department where it is filed alphabetically, by territory, by company. The filing here falls into two chief divisions, large buyers and small buyers. Then whenever sales manager or department head wishes to know consumption, relationships between his business and his competitors, between his prices and his competitors'

prices, or almost anything else about a company, territory or product, he calls upon this department, which by correlating the facts on the reports can give him the desired information. In this case, as in the previous one, followups either by letter or by salesmen, are purely automatic, depending upon the department head's noting the salesman's information regarding these points, and keeping adequate record of them.

This important function of keeping accounts alive becomes the duty of this special department, in the system used by some organizations. Here too, an abstract is made from the salesman's report after it goes through the usual route of sales manager and department heads. But the cards are then filed according to future dates, depending on the instructions of the salesman. Then when the time comes for any particular account to be visited, or written to, or sent a sample, or given attention in any way, this department notifies that particular department head involved. Reports from prospects as yet inactive, are filed a certain specific length of time ahead, so that the cards are constantly recurring and thus every account kept active.

Semi-Mechanical Systems

The work of tabulation and correlation is in some companies handled by means of one of the partly mechanical systems which in recent years have appeared upon the market for the use of business and manufacturing organizations. The information contained on the salesman's report is, after the customary routing, sent to this department, where the information contained in it is transferred to cards which are part of the system. These are indexed and cross-indexed many different ways, according to territory, product, salesman, etc., and by means of a mechanical device, information concerning sales may be easily secured when needed. A mechanical system of this sort has certain limitations, but in some lines proves quite satisfactory.

As has been indicated before, all the systems in vogue for making effective use of salesmen's reports are basically identical. All are different combinations and variations on the courses of procedure outlined above. At the same time, each has its differences and idiosyncrasies both in the report form itself and in the way it is used, which proves conclusively its individuality. But one thing is true of any report or any system. It is only as good as the individual salesman. It is a success or a failure depending upon the completeness, accuracy and intelligence with which he makes the report. On that fact, every sales manager in the industry is agreed. The salesman is still the nucleus as he was in the days before reports. But to-day report forms and the most effective methods for using them occupy an important place in the sales category and every sales executive continually taxes his ingenuity in an effort to improve his particular report form and report system.

Science and Sales

Foam rubber is said to be the lightest solid substance, having about one quarter the specific gravity of cork. It is not ordinarily permable to fluids, has remarkable resilient and bouyant properties, and is said to possess unequalled heat insulating qualities. It is formed by injecting an inert gas under high pressure into the rubber compound while it is being rubber vulcanized, giving material with a myriad of tiny cells separated with an exceedingly thin membrane, which may serve for lining refrigerators, making upholstery, etc.—*India Rubber World, March 1.*

A protective coating for cement vats used in the tanning industry, has been invented by a Russian engineer. The material, similar to oil paint, is applied by a paint brush, and dries within 24 hours, producing a strong elastic film on the surface of the vats. The coating is claimed to withstand a temperature of 50 C. and to dissolve readily in kerosene and benzene.—*Dept. of Commerce Bulletin, March 5.*

Two new lacquer solvents are being offered by the Carbide and Carbon Chemical Corp. They are for use in dopes for artificial leather, and for smoothing out brushing lacquers. They are Carbitol (diethylene glycol monoethyl ether, with a boiling point of 186°) and Butyl Carbitol (diethylene glycol monobutyl ether, with a boiling point of 240°).—*Paint, Oil and Chemical Review, 2-2-28.*

Methanol and hyrdocarbons have been obtained in varying yields from cellulose distillation under pressure with and without catalysts. The yield of methanol from wood under similar conditions is considerably increased. Whether this process meets commercial success remains to be seen, but seems to depend on the development of suitable equipment.—*Ind. & Eng. Chem., January 1928.*

Sodium fluosilicate has been tested by the Bureau of Agriculture and is recommended as the best insecticide for the beetles that attack the soy bean crops. It is a white powder produced as a by-product in the manufacture of acid phosphate and may be dusted over the plants at any time that the beetle is present.—*N. Y. Times, March 9.*

High temperature carbonization in narrow high speed ovens offers an opportunity for the development of the exploitation of coke oven gas, which has hitherto been burned as a waste product.—*Gas Age-Record, 1-21-28.*

Rubber solutions may be made more adhesive by the addition of a small amount of alum, with or without sodium chloride.—*India Rubber World, 1-1-28.*

Who Controls Industrial Buying?

By J. George Frederick

IN the president's office, standing in a half circle about his desk, were the purchasing agent, the production manager, the engineer and one or two assistants.

"Is there any last comment any of you have to offer before we make a decision on this large purchase of raw materials?" asked the president. "I have examined all the memorandums and reports you gentlemen have submitted, and we have several sessions before this, debating each point. Now, unless any of you have something new to bring up, I am about to make up my mind that we place the order with the Johnson people."

The purchasing agent, with a slight smile on his face replied, "I have only this comment, Mr. President, that if the same conditions prevail at the final decision for the purchase of our own goods by our own customers, as prevail here when we purchase our own material, then our entire selling plan is a little askew. As you know, our sales and advertising effort is at present focused on educating the purchasing agents, operators and engineers of our customers. But here we are around your desk at the final conference, Mr. President, and it is you as president who are really making the final decision on purchases. In fact you actually were the one to take up with me the matter of buying from the Johnson people.

"Don't misunderstand me; I am not objecting, as purchasing agent, to the fact that in this instance you took up the idea of buying from the Johnson people, and are making the final decision to do so. What I am bringing to your attention is that our own purchasing practice is something different from the theory upon which our sales department is operating in selling our own goods. We are concentrating our sales effort on purchasing agents, production managers, and engineers; but if our own example is at all typical, we must be somewhat wrong, because you as the president of this company are evidently a very important factor indeed in making purchases of importance."

"I get you," replied the president, looking very thoughtful. "You mean that if I as president take such a deep and active interest in our important purchases, then the same must be true of the presidents and other officers of our customers. You have made a mighty interesting point, Mr. Brown, and in a moment we will call in Mr. Smith, the sales manager and study this matter. In the meantime are any of you gentlemen of the opinion that I am going beyond sound principle when I myself make the final decision in regard to important purchases? Don't be afraid to shoot straight."

The production engineer, a brusque and plain-spoken man, spoke first. "There is nothing new about this subject," he said. "We have debated the thing a number of times at our technical meetings. The men in our profession who have inflated egos get up at these meetings and express their resentment when purchasing agents or anyone else, including presidents, butt in and decide purchases. They want to 'Napoleon' the thing themselves. But so do the production managers and the purchasing agents also. Am I right, Brown?"

Brown nodded with a grin.

"The point is, Mr. President, that if either one of the subordinates who have something to say in a purchase were to be given their way, they would want the full authority to specify. But as I happen to be trained on the subject of business organization principles, I am very well aware that such men are wrong. The top executives in any business where large and important purchases are made simply can-

not dodge the full responsibility. The matter has too much to do with the success or failure of the company. I thoroughly agree with Mr. Brown, and I think it would be a darn good idea to point our sales guns a little more actively at the higher executives."

"The thing never struck me before," said the president, "but it is quite true that if I had not been reading the Johnson ads in the technical papers and elsewhere for a long time, we would probably not be making this purchase. Some time ago, impressed by their advertising, I made up my mind to look into the thing thoroughly. Of course Brown, to, has doubtless been looking into the matter . . . "

"Yes," cheerfully added the purchasing agent, with a grin, "it's been several years ago that I first recommended that we give the Johnson people a tryout."

"But nothing happened," smiled the president in reply, "until I had been reached by the advertising of the Johnson people. This is a good object lesson for us. Let us bring in Smith and talk it over."

The net result of this little incident was a shift in the selling and advertising plans of this company, which was bright enough to notice its own typical executive situation with regard to important purchases.

The Buying Habit

Theory, preconceived ideas and habit-together with a considerable lack of fact as to the true situation in buying—has obscured the situation for many years, and only slowly have we come to realize that as a matter of actual fact the buying habits of industrial companies are as essential to study and understand as chemical and mechanical matters. For years more or less innocent assumptions have been made that industrial goods are bought by engineers, production managers or purchasing agents with no very serious consultation with officials higher up. There have been many cynics who have assumed the other extreme to be true and aimed always above the heads of these functionaries, without granting them their true and dignified place in business organization. The precise truth is naturally somewhere between these two extremes, and much argument has been going on for years on the subject, without any very definite information.

Because of a rather extensive research made for the A. W. Shaw Company, Chicago, into the subject of "Who Buys for American Industry" it is now possible to discuss facts to a greater extent than in the past, instead of mere opinions. This research first delved into the subject of the number of persons who function in buying industrial goods. It was found that the average for all transactions was 4.1 and ranged all the way from 1 to 13 persons. In small companies the average was 2.9; in medium-sized companies 3.4, and in large companies 5.1. The next question investigated was *who functions in such buying*, entirely independent of the question of what function they perform. The purchasing agent naturally led with 74%, the general superintendent, 45%, the department head, 36%, the president of the company, 35%, the vice-president, 24% and the operator or user, 26%. These percentages refer to the percentage of cases examined in which these functionaries had to do with purchasing. A further study as to which one of these acted purely as a matter of formality and to what degree, showed that in the case of the vice-president it was 50%, in the case of the purchasing agent, 53%. In only 10% of the cases did the president act as a matter of formality. It is very evident from this research that the president, the general manager and the general superintendent are almost always exceedingly important factors.

President Most Important Factor

Finally the research attempted to define whose actions were most essential in the sale, and in this examination the president came highest, 29%; the general superintendent following with 26% and the general manager with 17%, the purchasing agent was most important in only 16% and the operator or user, 5%. It was found that in small companies the president is indisputably the most important factor; in medium-sized companies the general manager and the president equally; and in large companies the general superintendent.

This research made perfectly clear that it is *the basic need*—especially for a new type of article or material, which requires first to be sold to the men who think basically for that particular concern. This naturally means the higher executives.

Those of us who have for years past deeply interested ourselves in this problem of industrial buying and the methods by which basic needs and new ideas can be inculcated in higher executives in order that actual personal salesmanship may have a chance to function, have long known that something like the situation pictured in this research was the truth. We are now, thanks to the application of the research idea, more definitely aware of the subtleties, and complexities of industrial buying, and are now having the good sense and business intelligence to apply this knowledge strategically.

Some Sales Managers Skeptical

Many sales managers seem to find it a stumbling block. Some of them stubbornly refuse to depart from the old idea of throwing personal salesmanship in massed formation, at heavy expense, up against the regular industrial buying barriers, and considering that sufficient. Such habit of mind belongs to an earlier era when salesmanship was everything. It seems to be a little hard for these sales managers to adjust themselves to the new tools and new strategy of a day when we know more about this subject.

Such sales managers are a little impatient with the idea of using a flank attack rather than a direct attack; in other words, using advertising in an educational manner to bring about among high executives an appreciation of basic needs and modern principles which will inevitably lead to greater reception of personal salesmanship.

As this research points out, advertising must be relied upon to sell *the basic need*, in 95% of the transactions; to sell the *type of goods*, in 86% of the transactions; and the *specific make* of goods in 41% of the transactions. In other words, the more need for basic education of the men higher up, the greater the ratio of need for advertising strategy as contrasted with plain, unaided personal salesmanship. The salesman who walks in upon a firm one time or a dozen times hasn't the same chance to do a basic educational job that advertising has, for the simple reason that he is not permitted to contact with the general manager, general superintendent, vice-president, president or finance committee, who, hidden in their inaccessible offices, are not at all in the habit of discussing such things with salesmen.

Purchasing Agent Should Educate

It may very properly be commented that a good purchasing agent's duty is to educate his superiors and associates; this is true; but always in business we face a human situation rather than a theoretically ideal situation. The purchasing agent usually is a very capable man, highly trained and with high professional standards, especially since the development of the National Association of Purchasing Agents; but business life is more speedy, complex and full of demands, and it is quite too much to expect that a purchasing agent be the effective ambassador of every good proposition. It is a far more logical procedure for a seller of industrial goods to place his story before the higher executives whose judgment are the most important in the O. K. of such purchases. The pages of the business journals dealing with the basic factors of the industry rarely fail to be scanned by important business executives. They could not be executives if they neglected this duty; a truth becoming more evident every year in American business under our more intensified, highly competitive conditions. More often than not, such high executives utilize time at home in the quiet of their libraries, away from distracting business pressure, to do creative thinking regarding their business, and many indeed have been the important purchases which have been started by the clicking in the brain of some high executive as he contacted, through such trade press advertising, with the creative brain of the seller of the goods, and caught the electric current of progressive ideas which the seller was radioing to him by advertising.

It is quite true that many such high executives may shelve the matter and neglect to act upon it, or may merely receive the idea without a very definite reaction. But when the matter is brought to his attention by purchasing agent, engineer, operator or user, by a salesman, it receives a far better reception and deeper understanding than if it were a completely fresh proposal, plan or material.

The modern strategy therefore of selling industrial goods calls very definitely for auxiliary effort besides the calls of salesmen, and the more basic the proposal or change called for by the seller, the more seriously necessary does such auxiliary work become.

We are living in an era when salesmanship is being conserved like any other commodity; and for any kind of product it has become most important to reduce the sales resistance for the salesman through educational and good will work upon higher executives. At one time salesmen disdained to utilize such additional selling help and introduction value; but to-day they actually demand it as necessary and logical to their efficiency. The matter is no more one of opinion or guess-work, but of demonstrated fact. The selling situation is altered by these facts, and no seller of industrial goods will ignore them, on pain of high selling cost or failure.

British Chemists' Wages

In August last, a questionnaire was issued by the British Institute of Chemistry to its Fellows and Associates inviting them to give (in confidence) information with regard to their salaries and conditions of employment. One thousand two hundred and sixty four forms, representing only 24 per cent. of the membership, have been received. In these circumstances, says the "Journal and Proceedings" of the Insitute, the Committee does not recommend the publication of the results, as it is considered that any statement based on such an incomplete return is of very little use and is liable to be misleading. Generally speaking, it may be said that, while many of the junior members of the profession are in receipt of rather small salaries, i. e., of the order of £250, £300 per annum, those with good experience, say between 35 and 40 years of age, have made returns showing a decided average improvement (£50-£100) on the figures given in 1921, for the same period of life.

Chemists are engaged at definite salaries or with salaries and fluctuating bonus; some are permitted to supplement their incomes by undertaking other work. Many contracts contain a clause restraining chemists from practising in a similar branch of industry for a definite period, usually from one to three years, and in many such cases provision is made for compensating the chemist during a period of enforced inactivity. Some employers forbid any publication of scientific work. Others are disposed to encourage publication. The period of annual leave varies from two to six weeks, and the period of "notice" is frequently indefinite, many chemists having been engaged without definite contracts.

Chemical Selling

from the viewpoint of

The Chemical Buyer

An Authorized Interview by Williams Haynes *with*

Norman Peterkin

HALF a dozen of the shrewdest sales executives agreed that if he could be persuaded to do so, Norman Peterkin could, among all chemical buyers, make the most searching analysis of the chemical distribution from the point of view of the consumer this system is supposed to serve. Was he not for several years in the sales department of the General Chemical Co., in closest personal contact with three of the giants among the sales managers of the war and pre-war period ? Is he not the largest buyer in the metropolitan area—in some cases in the entire country—of such widely different chemical materials as phosphate of soda, red oil, silk dyes, silicates, tetrachloride of tin ?

But experience in the chemical market and volume of purchases alone could hardly account for so unanimous an opinion. There are many well informed big buyers of chemicals. All these salesmen agreed that Mr. Peterkin is a keen buyer and a fair buyer, an honest customer and a loyal one. A little journey to the big plant of the United Piece Dye Works at Lodi, N. J. was obviously obligatory.

A Preferred Customer

"We make every effort to have the men who sell us chemicals and dyes consider this company a preferred customer. We want them to want to sell us. We are naturally a big customer, but it goes further than this. We like our relationships to be gentlemanly and we keep our business dealings business-like."

This, in the first words he said on buying and selling, Mr. Peterkin quite unconsciously justified the expectations that had been raised so high for him. Never was there a less guarded buyer. Neither office boy, nor a telephone operator, nor a secretary act as his buffer. Through a plain glass petition he sits in sight of all visitors. I waited a moment while he was telephoning and then walked freely into his private office. We chatted a few moments of fishing in Canada; of his visit last summer to his old home in England; of business friends in common, Albert Hawkes, John Chew, Philip Dinkins; and then, quite abruptly he plunged into chemical distribution problems.

"I consider," he added to his thought on perferential buying, "that every transaction between buyer and seller is confidential, and that confidence is binding upon both. So long as their prices are in line we do not switch our sources of supply. On no occasion do we ask them to bid competitively against that most unfair of all competitions which arise from variations in quality."

Consolidates Purchases

"There is another form of unfair competition," he continued, "which the small company with the small overhead and the ability virtually to shut down in dull periods can practice. I prefer to consolidate our purchasing with the largest manufacturers. I like to buy as much as I can from a single source of supply. It is astonishing how hard some chemical manufacturers seem to work upon the opposite basis. They cut up their sales effort into different departments or divisions, instead of trying to sell us at one time all our requirements of all the chemicals or dyestuffs that they produce. It is a variety of specialization gone to seed which appears to me to be quite uneconomic."

His steady steel-blue eyes sparkled with interest. Very plainly he thinks broadly in the terms of big business, as shown by his analysis of the dye market situation.

"I am certain we cannot buy below cost without making good that loss someday. Every transaction must be profitable to the seller and to the buyer alike. When the dye manufacturers complain (as they often do) that they have been loosing money, on some of their products, I can understand their efforts to bring these prices above their costs. Business must be profitable to all parties. But higher prices do not reach the root of the evil. Overproduction seems to

me to be the crux of this problem. The cause of their troubles, can only be removed eventually by the survival of the fittest or of the richest; by some exchange of intermediates or by the dropping of some colors by certain makers in order to concentrate the tonnage in a few plants. Dyes are essential to the operation of our business, and no one is more deeply concerned with seeing the dye industry upon a stable, sane, profitable basis. We are perfectly willing to pay a reasonable price, which shows a fair profit to the dye manufacturer, and I wish sincerely that they would lay the axe to the root of their difficulties, over-production."

Selling Competition Too Keen

"Of course, dyes are not the only chemicals in this unsatisfactory state. There is no doubt but that selling competition is a bit too acute these days. In fact, since 1920, the entire chemical market situation has been one which has been distinctly favorable to the buyers, and markedly to the disadvantage of the chemical industry."

In response to my direct questions, Mr. Peterkin replied that he felt that the protection against decline clause in a chemical sale contract was one of the evils arising out of the super-competition of the day.

"Protection against sellers decline is superficial. It has become common practice for reliable concerns to voluntarily reduce contract prices to meet open market declines. I do dislike protection against market decline as it compels the buyer to divulge the price quoted and name of competitor. The whole contract structure is much more informal than before the war, and there are few who regard such commitants seriously as legal documents. We place contracts —for our requirements only—for certain chemicals which are standardized and for which we have a steady use; but we do not believe that they are advantageous either to buyer or to seller in the case of dyes."

Hand-To-Mouth Buying

"Hand-to-mouth buying has been at once a curse and a blessing. By keeping inventories down it has strengthened the financial position of many industries and it has certainly acted as a balance wheel against the practice of selling to the ultimate consumer on the instalment plan. Just imagine what dynamite, planted in the business situation would be if we had installment buying pyramided on top of big industrial inventories. We should then be begging for a slump, and it is these slumps and booms that are most costly to all American industries."

"Our own business has been a bit peculiar in that our raw material, silk, is very costly, so costly that much of the manufacturing is done with financing from outsiders, the factors. They are naturally anxious to reduce interest charges by putting this high priced material through its manufacturing processes as quickly as possible. Most of our work is therefore rush work and to handle this and to take care of various seasonal demands, we must have plant equipment and chemical materials available. Our fluctuating orders for raw materials force the manufacturer of dyes and chemicals to maintain a plant capacity or storage space far beyond the regular day-by-day requirements. Nothing illustrates better than this the tremendous extra cost caused by these peaks and valleys in American manufacturing."

"The jobber? Yes, he has a proper place in the distributing of chemicals; but we make it a rule to turn over our stocks of chemicals at least twelve times during the year. Our own warehouses and storerooms serve us in the function of a jobber."

Clean-cut and highly strung, obviously one who works under pressure but under good control, he has the habit of pulling himself up, of taking a breath, as it were, of relaxing that tension. He did so at this point, and leaning back in his chair he studied the flat surface of his plain oak desk for a moment while he lighted a cigarette.

Buying A Cold-Blooded Affair

"You know," he said at length, "this business of buying is a cold-blooded affair. We must scour the markets to find all the goods that are available of everything that we buy. We must discover all the kinds, varieties, and qualities that this plant needs. We do not assume the responsibility for these needs. That is the work of the operating departments. We must buy the supplies they require from the best source and at the best possible price. We will continue to buy from this source as long as possible, for we do not like to change. We like to concentrate our purchasing. We cannot, however, pay a premium for doing business with any seller. All we can promise is fair treatment and prompt payment."

Potash Sales Since 1910

An 18-year record of the potash fertilizer salts entered for consumption in the United States is shown in the following table, prepared by Department of Commerce:

Fiscal year	Kainite Long tons	Manure salts Long tons	Muriate of Potash Long tons	Sulfate of Potash Long tons
1910	470,241	90,933	174,935	37,933
1911	586,474	169,105	191,324	47,441
1912	479,817	185,682	216,101	45,134
1913	466,184	172,556	199,854	42,877
1914	526,112	260,977	234,855	44,986
1915	79,124	66,411	102,882	21,705
1916	64	2,278	2,126	2,427
1917	.....	324	606	656
1918	.....	225	596	136
Calendar year				
1918	.....	.....	379	90
1919	51,274	43,511	20,716	1,263
1920	372,019	311,462	121,602	15,184
1921	69,076	38,648	71,109	11,124
1922	151,149	195,005	160,254	57,620
1923	167,708	269,394	135,497	63,741
1924	156,708	231,248	129,128	75,696
1925	182,828	384,232	161,028	68,952
1926	181,877	316,440	199,151	69,873
1927	2,987	277,998	163,817	68,904

A Salesman's Thoughts On Selling Chemicals

By Walter J. Murphy
of W. F. George Chemicals, Inc.

Only too often we read the executive version of what ails the sales structure of an organization. The salesman's angle on this problem, though probably not of such importance, is well worthy of consideration.

WHAT do I, as a salesman think of selling chemicals? Perhaps it is just as well that I attempt to answer this question during the leisure of a week end, rather than immediately after an interview, during the course of which I have been somewhat forcibly advised that my prices are high, deliveries undependable and product inferior.

However, in a more serious vein, a salesman must essentially be an optimist as there are sufficient real obstacles to overcome, without the invention of imaginary ones. It follows, therefore, that having adopted selling to the chemical industry as a means of livelihood, he must view its future with at least a reasonable degree of optimism. However, this spirit is tempered by the knowledge and realization that the industry is still in its infancy, and it is suffering and will continue to suffer from many diverse "growing pains." A field displaying such tendency for revolutionary ideas and processes, requires a keen alertness and the salesman plays no small part in this evolution. Acting as the intermediary between supply on one hand, demand on the other, he can, and often has in the past created the spark which has brought about new products and more satisfactory and economical methods.

A salesman is employed, trained, equipped with a price book and an order pad, then cast out into the unkind world of devouring purchasing agents with a single idea in mind—to sell.

In certain of its characteristics the act of selling chemicals differs from selling most any other commodity or service. One hears little or nothing about the so-called "high pressure salesmanship" where the marketing of chemicals is concerned. The "high pressure" salesman is pretty much unknown except in isolated cases of specialties, whose intrinsic values are somewhat doubtful. To-day, the manufacturer who is dependent upon raw materials, must purchase at the lowest possible figure and in addition must be protected with a reasonable degree of certainty on his costs for a definite length of time. Hence a large majority of houses find it advisable to contract, at least for their more important commodities, first, to obtain the benefit of lower prices in return for the assurance of greater volume to the producer and secondly to secure ample protection against unexpected market conditions. Accordingly, obtaining the John Jones Manufacturing Company's business, placed on a yearly contract basis, is a rather long drawn-out procedure. It means that the salesman must sell himself, his organization and his product, unsually in the order named, before his accounting department will be called upon to mail any invoices to the John Jones Company. Many, many calls must be made to build up this solid foundation, before an ounce of material can change hands. Long after the "high pressure" salesman has grown weary and disgusted, the salesman type required in selling chemicals will still be trying with as much ingenuity as he can command to break down this discouraging form of sales resistance. Faint heart ne'er won fair lady nor many chemical orders.

You will not, perhaps, agree with the order of importance assigned to the three major problems confronting the chemical salesman. First, the necessity of selling himself, secondly his organization and lastly, the quality of his product. Off hand, one might easily say, that from the consumer's viewpoint, the order of importance should be directly opposite to the one presented, and in a certain sense, this contention is correct. However in the heavy chemical field, the question of quality is usually an accepted fact on the part of the purchasing agent, when he is doing business with or contemplates doing business with a recognized house.

It is true that for some particular purposes, a product of one manufacturer may be superior to the field and that there does exist some difference—physical, chemical or both in similar commodities produced by competing companies. In the main however, the

differences are slight. On the other hand, in selling cloth, suits, machines, and a thousand and one articles, there do exist radical degrees of difference in quality and value and it is just these variations that afford the salesman his muchly needed selling points. Exclusive designs, peculiar shades, greater strength, patented features—how the chemical salesman sometimes longs for some such line of attack. However, the term "standard brand" will usually satisfy the purchasing agent.

Selling His Personality

Therefore the chemical salesman's first and most difficult problem is to sell his personality to the man who signs the requisitions, or who possesses the authority to place his "John Hancock" on the yearly contracts. It is hard to define just what personality consists of—it cannot be broken down, analyzed and charted. I have never held in much esteem books on salesmanship, although, I suppose, they do have some merit. My experience has been that they contain a lot of good "horse sense" that any aspiring salesman should start off endowed with, solely from the fertility of his own brain. Difficult as it is to define, personality is of vital importance, because in most instances, it will alone be the means of surviving the hackneyed expressions of "We are contracted on our requirements" or its twin brother, "Why should we change, without a price inducement ?"

A few weeks ago, I called on a prospect who has purchased a certain commodity from one source for several years. After I had exhausted about every line of attack, he said, "Well, why should I change ? If I gave my chemist for analysis your product and the one I am using, he couldn't tell them apart—your price is identical with that which I pay your competitor—you will deliver in twenty-four hours, so will he." I admitted frankly, I didn't know, unless perhaps, there was the possibility that he might like my name, looks, or the fact that I had called on him more often or even possibly, just because human-nature after all revolts against sameness and it would give him a chance to sign my order pad, which is green, while my competitor sports a blue one. I might add that I got the order.

Firm's Reputation A Great Help

Hand in hand with this problem, is that of selling the organization the salesman represents. This is of course easy or difficult, depending upon the size and general reputation a salesman's house already enjoys. The purchasing agent places great stress upon the ability of his supplier to deliver material quickly and as specified, and the necessity of making deliveries on time is far more essential than formerly. The salesman representing a company which enjoys such an enviable reputation is in a more advantageous position to break through sales resistance than his less fortunate competitor.

It is not possible to take a cross-section of purchasing agents from a number of industries, to stir them together in a kettle of "Hotel Lobby" conversation and to evolve from this a composite picture of the representative American purchasing agent. Each one presents a different problem. Some are arrogant, some engage in sharp practices, others and this goes for the majority are intelligent, courteous, extremely well posted and reasonably receptive to new and worth while ideas. An average salesman's day will afford a very interesting insight on the many varied sides to human nature.

Generally speaking, it has been my experience, that the larger the company, more courteous the treatment the salesman receives, and more pleasant the duty of making sales calls. The most difficult buyer to satisfy, is the one who buys a barrel of this or a drum of that, telephones at two o'clock in the afternoon and will want it delivered the same afternoon. In supplying the largest carload buyer on our books, whose business we have enjoyed for a long period of years, I can recall one or two occasions where complaints has been made. Small less carload consumers are seemingly never satisfied.

Buyer Has Distinct Advantage

It is not simply the stock excuses of salesman that I am thinking of when I say that in the vast majority of commodities being sold to-day, we are in a buyer's market. With this condition a reality, the buyer has a distinct advantage over the salesman. To just what degree the buyer takes advantage, either legitimately or illegitimately, varies in each situation.

The buyer's job is to buy as cheaply as he is able to do so. Still, I do not think that there should be one code of business ethics for purchasing agents and another for salesmen. The buyer who states he is purchasing at such and such a price and is doing no such thing is guilty of a lie. Yet there are a number of purchasing agents who are cloaking their own inability to drive a hard, close, but legitimate bargain, with the stock phrase, "I am buying for such and such," or "your prices are high," hoping that some weak kneed salesman will meet or even better this imaginary existing prices. Even more dispicable, is the buyer who, under the guise of friendship, will attempt to persuade his supplier to meet non-existing prices or quotations. However, the buyer of this type is in the minority.

I have said therefore, that it is the purchasing agents job to buy as cheaply as possible. I think a more correct way of stating this, at least from the point of view of good sound judgment, is to say rather that it is his job to buy each particular commodity as cheaply as his competitor does. After all, it does not much matter whether he pays two or four cents a pound, just so long as he knows that his rival is paying a similar price. While he may obtain a temporary advantage momentarily, any buyer who forces or cajoles a producer into taking business at a loss or

with insufficient profit, is driving himself up against the inevitable stone wall of supply and demand. When the "weak sisters" have been shaken out and competition ceases, the pendulum will swing just as far in the opposite direction. The history of a large number of chemicals and chemical products will bear out this statement. There are quite a few commodities selling at considerably more than a legitimate profit, because price cutting and temporary buyers advantages have wiped out the healthy competition that formerly existed.

Much Time Wasted

Very often I have sat, cooling my heels in an outer office, wasting valuable time,—at least valuable to me, while a purchasing agent refused to see me until he "Just gets around to it." How often have I raged inwardly and then the thought has come, "I wonder in what outer offices his company's salesmen are similarly wasting their time." I believe most purchasing agents so inclined, would see things differently, if they would but spend a few minutes in earnest conversation with salesmen in their own organization. Wasted time during business hours is mighty expensive, whether it is the purchasing agent's time or the salesman's. A number of companies are making efforts along these lines, but the movement is still hardly perceptible. A buyer can co-operate, if he will but just try to see the other fellow's point of view and I know of no other single action that the salesmen will appreciate more. I believe the majority of purchasing agents and buyers could by intelligent thought eliminate this wasteful condition.

Broadly speaking however, the purchasing agent is not such a bad sort. The average one is generally handling several lines other than chemicals and it is surprising the technical knowledge that many possess. A salesman worth his salt will most certainly enjoy not only the business friendship, but the genuine personal friendship of a large number of buyers. Perhaps the most successful purchasing agent I know has adopted selling methods in his purchasing. Instead of being sold he sells himself to his present and prospective suppliers. He has made a genuine effort to obtain the friendship of the salesmen supplying him with his materials and in this way, I have no doubt but that he has saved large sums of money for this company. I know for a fact, that on one single item last year, this saving amounted to over forty-thousand dollars, and was brought about through special technical information obtained from one of his salesman friends supplying him with a product other than the one on which the saving was affected.

"Our neighbors grass always looks the greenest," and many a chemical salesman has sat across the desk from an especially "hard boiled" purchasing agent, humbly watching and wishing that he might exchange places. After all however, we cannot all be purchasing agents and cannot all be salesmen.

Human nature is selfish and each and every one of us at various times, stops and thinks "What am I getting out of this in a personal way—am I getting my proportional share?" Frankly, I do not believe that the chemical salesman is recompensed monitarily as highly as most salesmen in other lines for a like amount of intelligence and effort. There are however, several real legitimate reasons for this condition, the more important being the fact that the capital investment in heavy chemical manufacture is usually very high, while the commodities are comparatively low in price. The salesman who is looking at nothing else but the figures on the monthly pay check is just about as valuable as the clerk who watches the time clock, and usually lasts just about as long.

An Interesting Job

Selling chemicals to the consuming industries is a mighty interesting job if one is chemically trained or chemically inclined. In very few fields will the salesman find an equal amount of intensity of interesting variation. There is to, a certain amount of real satisfaction in being participant in an industry which has made greater strides in the past half a century than has ever been made before in the history of the industrial world and which has contributed so lavishly to our well being, health and comfort and which promises even greater accomplishments in the future.

Imports of antimony chemicals entered for consumption in the United States during the past five years have been segregated into four groups by the Department of Commerce. As will be seen from the table that follows, important changes have occurred in the quantities of individual groups during the five year period:

Imports of Antimony Chemicals, 1923-1927

	1923	1924	1925	1926	1927
	Pounds	Pounds	Pounds	Pounds	Pounds
Oxide	3,500,830	1,321,955	2,056,886	3,422,559	3,624,152
Sulfides, red and golden	239,106	157,322	523,631	1,018,520	906,460
Tartar Emetic	24,631	20,325	.....	6,170	12,561
Salts and compounds n. s. p. f.	790,080	913,770	1,004,472	69,879	64,490

A table showing the 1927 imports by customs districts and countries of origin is available in the Chemical Division.

Dr. Henry G. Knight, chief, Bureau of Chemistry and Soils, Department of Commerce, says that the belief current about twenty years ago, to the effect that acid phosphate was a cause of acidity in certain Eastern soils, is not well founded and that modern research has shown that properly manufactured superphosphate (acid phosphate) of recent years contains no free acid and that the evidence of fertilizer experiments by the Department and by several State agricultural experiment stations shows that superphosphate is not a cause of acidity in soils and in most cases does not change the reaction of the soil appreciably.

A comparison of Belgium lithopone and zinc oxide export statistics for 1927 and 1926 reveals that a large decrease in values was experienced for both commodities. The total value of lithopone in 1926 was $58,313 as against $32,144 for the later year. The total export value of zinc oxide dropped from $197,480 in 1926 to $158,796 in 1927.

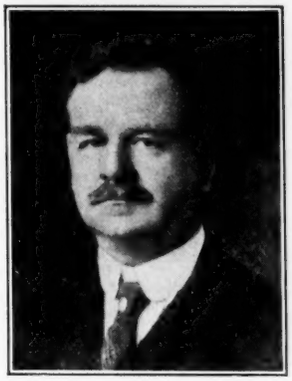
Local Distributors

Have a Proper Place in

Chemical Marketing

By Curtis R. Burnett

Vice-President, American Oil & Supply Co.



SPEAKING flippantly of serious problems in the chemical industry, the sales department head of one of the larger manufacturers said recently, "You chemical jobbers are like the women—we cannot live with you and we cannot live without you."

Only a few years ago he attempted direct selling and at that time we, like many other chemical jobbers, were seriously concerned over the future of our business. All about us we saw efforts to eliminate the middleman—chain stores and mail order houses, co-operative buying and direct-to-consumer selling—and right within our chemical field this movement was strong. But whatever may be the tendency in other cities and other trades we have given up worrying about what is to come of our chemical jobbing business in New Jersey. We are here, and here we shall stay. This is not boasting; we make neither threats or promises; but we have studied our own business and we know where we are able to render a real economic service to both makers and users of chemicals. If we can do that, we feel that we have a proper place in chemical marketing, a place from which we cannot be dislodged: in fact a place both our principals and our customers want us to fill well.

We are, therefore, gratified to find out convictions vindicated in a definite trend away from direct selling, an increased use of our facilities and our services both by producers and consumers. We are handling to-day, several lines that quite recently were sold by the manufacturers. We have scores of new customers to whom we are now delivering a full line of their chemical supplies.

The closer watch which shrewd buyers keep over their raw materials inventories; their disinclination to make long-time commitments; their better appreciation that they can buy from us at the right price with delivery (daily if need be) right to their plants, have worked to our advantage. Dozens of firms who formerly bought in car-lots now take in truck loads.

On the other hand, the problem of marketing costs has been impressed on the chemicals makers. We are able—this is not a theory, but a carefully figured fact — to distribute in our territory at less cost than the average manufacturer. The mounting costs of store

Territory covered by American Oil and Supply Co. from its Newark and Trenton distributing points

door delivery of small lots (which buyers now expect) and our assumption of all credit risks are notable parts of the economies we effect.

The fierce sales competition of the last few years is one of the big items in the high cost of distribution, for all sellers have been tempted or driven into rendering highly expensive services. I am but a most casual buyer of gasoline at roadside pumps, but last Sunday I drove up to a Standard Oil station, and my reception was a good demonstration of these supplementary costs of selling. Three uniformed attendants literally sprang forward to serve me. One wiped my windshield, one filled my radiator, the third sold me ten gallons of gas. They also tried, unsuccessfully to sell me some oil. I am not afraid to use the brands we sell, in my own cars. We do the same sort of thing when we deliver by truck, a single barrel of sal soda to a plant in Bound Brook—thirty miles away—at the same price we deliver a barrel just around the corner. Our salesmen must all be well posted, not only on market conditions, but on the uses and application of chemicals, for they are expected to give advice and information. Credits are an increasingly complicated and difficult problem, requiring intimate knowledge and personal relationships.

All of these factors combine in making local distribution cheaper and better through such firms as ourselves.

Jobbing Is Big Business

But these greater opportunities bring greater responsibilities, and chemical jobbing is growing up into the bigger business class. It is no longer possible to hang a shingle bearing the legend, "Chemicals, Dyes, Acids and Oils" over a dingy office with a subbasement for a warehouse, and so enter the jobbing lists. Our own plant, with a rail siding, storage tanks, stockrooms and a fleet of trucks—represents an investment of close to a quarter of a million dollars and we have $200,000 worth of chemicals in our stock. Our successful competitors have more or less the same kind of equipment for service.

To-day, the successful jobber who is serving as an efficient and necessary link in chemical distributing is one who studies the needs of his territory. As an example, since the artificial leather manufacturers in New Jersey were recently barred from using benzol we have been able to make a real contribution in helping them find acceptable substitutes. The successful jobber is also alert to meet the requirements of his local trade and he is scrupulously careful to select only strong, reputable manufacturers to supply the goods he sells. In these ways only, can the local distributor capitalize fully his best asset, which is his personality. And under modern sales conditions, personality means not only a pleasant, friendly, individualized, service, it means also integrity, sincerity and the strength of character and capital to back up good business intentions. Such jobbers succeed. Those who attempt any other policy fail surely. During the thirty two years we have been in the Newark territory we have seen twelve failures or comparative failures—all of which have been due to weakness—either moral, chemical or financial—but these examples, though by far the more numerous, should not be taken as the criterion of what jobbing service is, or what it can do to distribute chemicals cheaply or effectively.

New Incorporations

Chemical Charcoal Ltd., Montreal, Que. 30,000 shares no par value. Edward S. McDougall, Kenneth Archibald, Winchester Biggar.

Slingsby Silks Ltd., Brantford, Ont., textiles, 10,000 shares no par value James Harley, Edmund Sweet and Archibald M. Harley.

Dominion Fireworks Manufacturing Co., Ltd., Toronto, Ont. $40,000 explosives, John A. Kent, Ewart R. Lynch and John B. Allen.

George Weston, Ltd., Toronto, Ont. $100,000 and 25,000 shares no par value chemicals. Charles A. Bell, Harold S. Conrad, Samuel J. Vogan.

Levin & Sons Ltd., Montreal, Que., $60,000 textiles. Henry Weinfield, Marcus M. Sperber, Samuel D. Rudenko.

Canadian Wheel and Rubber Co., Ltd., Toronto, Ont. $40,000 shares no par value. Arthur W. Holmsteed, Leonard V. Sutton, Aileen Ritchie.

Day & Company Ltd., Calgary, Alta. 50,000 shares no par value, drugs, Frederick G. Hughes, William A. Brown, Harold W. Roberts.

Sodalumina Chemical Corp. of Canada Ltd., $500,000. Joseph Gareau, Ernest A. Forbes, Harry E. Orange.

St. John's Silk Co., Ltd., St. John's, Quebec, 5,000 shares no par value textiles. Francis C. Dobell, Francis G. Bush, Clifford G. Meek.

Culley-Warner Co., Ltd., Toronto, Ontario, $40,000, textiles. Ernest C. Bogart, Ross Kennedy, Edith M. Bogart.

General Fumigating Company, Ltd., Toronto, Ont. $20,000, chemicals. John Kerry, Amie S. Bruneau, Edmond P. Dale-Harris.

Canadian Paper Sales Ltd., Montreal, Que., 10,000 shares no par value, paper, Claude S. Richardson, Francis G. Bush, Herbert W. Jackson.

Seaboard Utilities Co., New York, petroleum, oil, sulfur—Prentice Hall, Inc., Dover, 110 shs com.

Lysle-Vitachrome Laboratories, Inc., Jersey City, chemicals—Corp. Trust Co., Jersey City, 15,000 shs com.

Pan-American Coal and Transportation Corp., New York, minerals—U. C. Corp. Co., Dover, 30,000 shs com.

Eastern Steel Barrel Corp., Jersey City, barrels—Corp. Tr. Co., Jersey City 1,000 shs com.

Armostone Corp., Newark, N. J., cement, plaster, lime—Del. Reg. Tr. Co. Dover, 2,500,000.

Reosone Laboratory, Wilmington, medicinal preparations, patent medicines drugs, chemicals—Franklin L. Mettler, Wilmington 200,000.

Firm of R. W. Gardner, Orange, chemists—Smith & Singeland, Newark 900 shs com.

American Molasses Co.—Lippitt & Berle, 67 Wall St. 50 shs com.

Stimuplant Laboratories, chemical products—McLean & Ferris, 350 Madison Av. 50,000.

Manufacturers Printing Ink Corp., dyes, chemicals—E. M. Strong, 8 West 40th St., Manhattan 100,000.

Lincoln Chemical Corp., Brooklyn—Capital Trust Co. of Delaware, Dover 475,000 shs com.

Acetol Products, Delaware, varnish materials 300,000 shs com.

Steel Products Corp. of America. New York—U. S. Corp. Co., Dover, 200,000 shs com.

Slater-Robbins Co., drugs—J. T. Robbins, 20 Graham Av., Brooklyn, 50,000.

Technical Color and Chemical Works—H. D. Tardy, 342 Madison Av., Manhattan, 10,000.

Wettersol Dyestuff Corp.—Muller & Muller, 285 Madison Av., 1,500 shs com.

Casco Mfg. Co., Wilmington, Chemists—Corp. Svc. Co., Wilmington, 250 sh.

It is rumored that Davison Chemical Co., Baltimore, holds an option on plant and other assets of Piedmont-Mount Airy Guano Co., Baltimore and Curtis Bav.

CZECHOSLOVAKIA

Its Chemical Problems

By Mildred V. Cox

In reviewing the chemical industry in Czechoslovakia, there are several factors to be considered, such as foreign competition, production, ease of exportation, fluctating markets, labor costs, and so on,—all the economic conditions affecting trade in any country. Naturally these vary with the product, but it may be said in general that foreign trade and lack of protective tariff is having very unfavorable effects on the industry of that country.

The chemical industry in Czechoslovakia is by no means a new one. It dates back to the middle of the 18th century, when sulfuric acid was produced by oxidizing aluminum shale in the air at Lukavice, Moravia, and Brasy. In 1778 there was an extensive export business of this product to the entire world. Alum and copper sulfate were among the other products which were produced in Czechoslovakia at that time on a large scale.

At the dawn of the 19th century there was established at Liben near Prague a mineral acid plant for the production of mineral acids and sodium salts and this is to-day the distillery and plant for the chemical products of "Societe Anomyme Fr. X. Brosche-Fils."

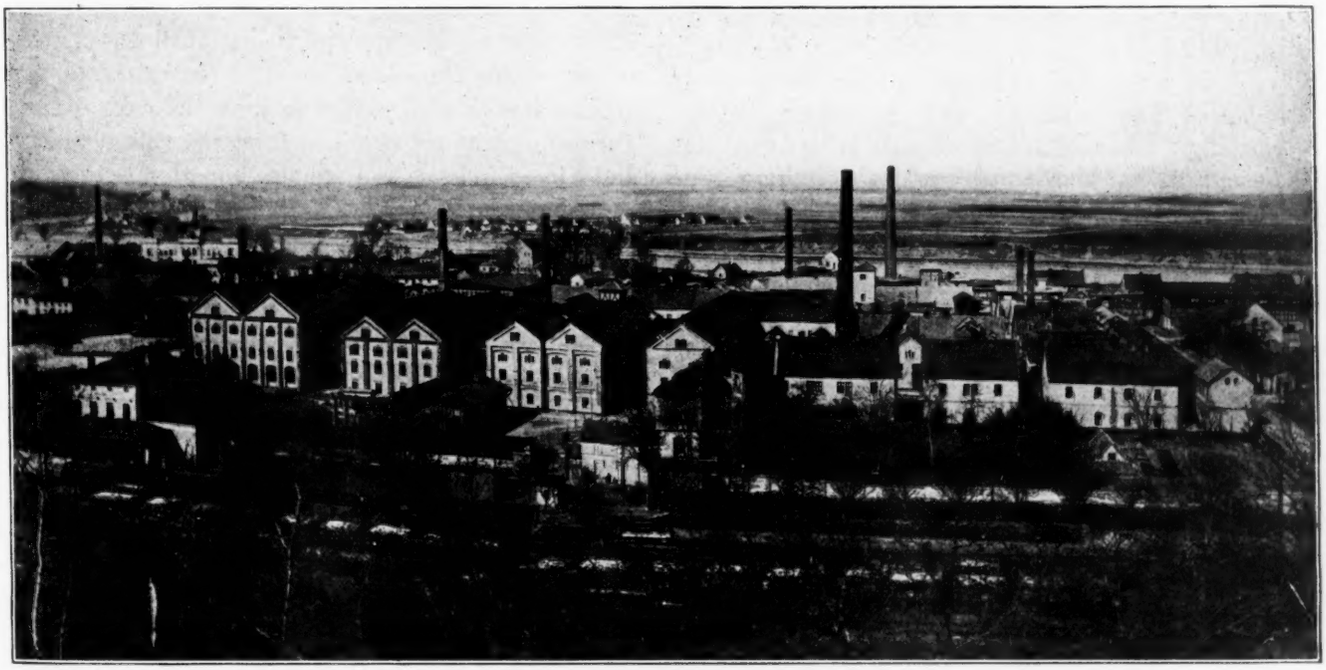
By the middle of the last century the chemical industry had become very well established. There were two plants in Silesia for mineral acids, sulfate and sodium carbonate by the Le Blanc process. In 1856 a plant for the sodium sulfate and carbonate was built at Uster Nad Laben.

The first plant for zinc pigments was constructed in 1848 at Petrovald in Silesia; in 1868, for sulfuric acid and chemical fertilizers; in 1870, for the production and the refining of potash; in 1871 two more plants for fertilizers and chemical products at Kolin and Pecky; in 1880, a plant for mineral acids, sodium sulfate and organic products.

In 1887 the foundation of the mineral oil industry was laid in Zabori near Kolin, and at Pragupice. This list of plants could be added to indefinitely until an approach the present day, for they are building new plants for the chemical industry every day.

The growth of the various industries, such as glass and textile, has given considerable impetus to the chemical industry. Glass is at present exported to the whole world in very large quantities and is the medium for developing the sulfate soda and potash industries.

Czechoslovakia is not richly endowed with raw



View of a chemical manufacturing plant in Czechoslovakia. Though not one of the largest, it is representative of the typical chemical unit of the country.

materials. Anthracite must be imported from Germany, but there is plenty of lignite and oil, so that lignite is exported to Germany in exchange for the anthracite imported. The oil furnishes a whole series of raw materials, tar oil, ammonia and various other coal-tar products.

Czechoslovakia has used good judgment in developing its tar industry. Unfortunately there is not enough local demand to meet the production either of the tar from lignite or oil or from the distillation of wood. These products of course can be exported but various difficulties are encountered in attempting to export its products. These must pass through many countries where they pay the various taxes and by the time the product reaches its destination, the price necessary to cover costs is usually above all competition.

Salt Largely Imported

At Solnohrad and in Subcarpathia Russia, there are various kinds of rock salts and salt lakes, but these are not sufficiently exploited to meet the demands of the industry. Also, due to the cost of transportation, the manufacturers prefer to import their salt from Germany by way of the Elbe river. Pyrites for the manufacture of sulfuric acid are found in Slovakia. Unfortunately this pyrites has a very low sulfur content and its utilization is therefore very limited. Most of the pyrites used is imported from Switzerland, Italy, Greece and Norway. That of native origin is used in the cellulose plants of Slovakia. The mineral zinc found in the country is also used for manufacture of sulfuric acid.

Phosphates which are indispensable as raw materials for chemical fertilizers are not found in the Republic. They are imported from Algeria and Florida. However, a certain quantity of raw materials for the production of fertilizers is obtained from the animal waste of the country. Saltpetre and kainite are all imported and potassium and ammonium sulfate, partially. Some of the nitric acid is imported and a small amount is manufactured from sodium nitrate which must be imported.

The wine distilleries offer an abundance of megasse which furnishes sufficient potassium salts for both industrial and agricultural use. The chlorine industry utilizes the hydrochloric acid produced from the ores and minerals of the country. Various important metallic salts are found locally, such as zinc, lead, tin, antimony, iron, aluminum and all the precious metals except platinum. Manganese and chromium salts are imported. Rosins are furnished mostly by America and only a small portion of the rosinous products used in Czechoslovakia come from the bark and wood of the country. The mineral oil industry imports naphtha from Galicia and Roumania but plant is being constructed for the production of naphtha at Kbely.

In the production of its various chemicals Czechoslovakia makes use largely of foreign patents. There are, however, a few native inventions which are exploited with success. The greatest chemical houses are founded either in the oil districts near railroads and waterways as at Ustiad, Laben, Falknov, Ostriva-Karvin or not far from the sources of raw materials as Moravia and Slovakia . In all there are 668 chemical plants employing 45,000 workers.

Domestic Sulfuric Acid Used

In a farming and industrial country such as Czechoslovakia, sulfuric acid constitutes one of the most important chemicals by reason of its varied applications in a series of chemical processes. It serves as a raw material for the making of superphosphates, sodium sulfate, hydrochloric acid, nitric acid, for the refining of mineral oils, for the making of alum, blue vitriol, organic dyes and innumerable other products of great importance to the industrial and economic life of the country. However, in spite of the extensive local use of this product, all that is produced is not consumed. Exportation is unsatisfactory so, in general, the plants aim to produce only what they can use themselves and avoid all overproduction. Both the well known processes for the manufacture of sulfuric acid are used, vis., the lead and the contact processes. Approximately 350,000 pounds are produced annually.

Fertilizers are produced partially from sulfuric acid by fifteen plants and more generally from animal wastes. Horn, skin debris, bones and animal fats are used in amounts totaling 7,000 cars of finished material annually. Along with the production of chemical fertilizers should be considered Thomas' Slag which is transferred into Thomas' meal at the rate of 50,000 cars per year. The phosphate plants at Vitcovice are the most important of these. Mixed fertilizers are also made, some of the raw material coming from bones and some from the coke ovens. Potassium salts are obtained from the potash plants and wine distilleries and are also imported as salts of Strassfurth.

Sodium Compounds Produced Locally

Sodium compounds (carbonates, sulfates, hydrates, hyposulfates, etc.) all raw materials of considerable importance, are made in Czechoslovakia. Sodium carbonate is an indispensable product, not only for the daily use of the population but for the textile, soap, paper, malt and glass industries. Sodium sulfate is necessary to the glass and dye industries and is a raw material for the making of ultramine blue. Sodium carbonate is made by one plant only, the Solvay plant at Nestemice which produces annually 3,500 cars of sodium carbonate by the ammonia process. This quantity is sufficient to meet most of the needs of Czechoslovakia and any excess is im-

ported from the Solvay plant at Ebensee. The plant at Nestemice, as well as various other plants such as soap manufacturers, etc. makes also crystalized soda.

Sodium sulfate is produced in eight plants of which six obtain it directly by treating sodium chloride with sulfuric acid whereas the other two use the sulfate coming from the nitric acid plants. Part of the sulfate is used for the making of Glauber salts. The glass industry has suffered a slight decline in the last year and therefore has decreased the market for Glauber salts.

Sodium Sulfide Use Curtailed

A falling off in the leather and cotton industries has been rather disastrous for the sodium sulfide market. There has been a decline in the price of this product and the plants are working to only about 30% of their capacity. The production of ammonium sulfide has continued about the same as in previous years but the market has fallen off so that there has been an over-supply. This fact reduced the price with the result that imports from Germany were regulated. In January 1927 the tariff on ammonium sulfide was raised but it has not as yet reached a maximum. The introduction of a tariff on this product is especially important on the grounds that it should make possible the building of a synthetic nitrogen industry. The first object of this industry should be the production of ammonium sulfide from synthetic ammonia.

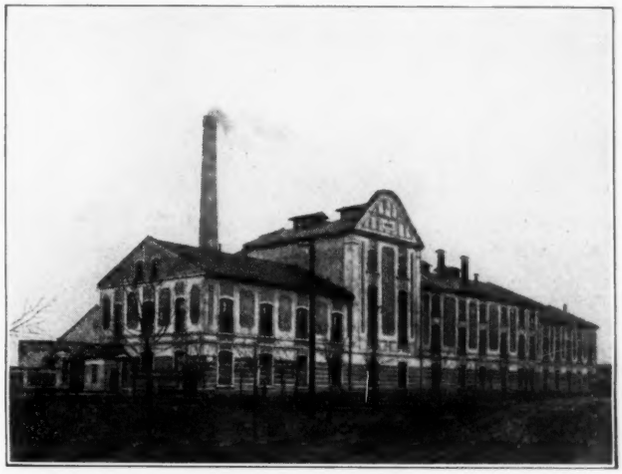
Production of brewery products with which several important factories are connected in Czechoslovakia reached recently 60% of its capacity. This industry is very largely dependent on exports and was greatly affected by the placing of a tax on brewery pitch in Germany. Poland, France and Switzerland also have a high tariff on these products so that the Czechoslovakian market is very limited and can only be aided by a trade agreement with other foreign countries.

Zinc Industry Unstable

The zinc industry of Czechoslovakia is in none too envious a position. Taxes and special costs burden this branch of the industry about 20 to 22% while the German product whose competition must be met is only taxed about 5%, according to the Davis plan. This naturally has a depressing effect on the home industry. Zince dyes assume a unique place. They are prepared mostly for export. It is not possible for them to reach the height of the pre-war market because that state to which we exported mostly is protected by a high tariff. The quality of the product is a great asset in this trade and has had the effect of keeping up the price. The zinc dye industry built up in England, Germany, France and America during the war has naturally affected the market. The protective tariff on these goods in the United States amounts to about 30% of their price, so that it is almost impossible to export to this country.

Chlorine is one of the most important chemical products for bleaching so that the making of its compounds is closely connected to the textile and paper industries. It also plays an equally important role in the production of explosives and in the dye industry. Hydrochloric acid from sodium sulfate is produced in very large quantities in Czechoslovakia and this fact has its effect on the chlorine industry.

The ultramarine dye industry had less trade than in previous years. Export conditions to other countries are not favorable and the high cost of transportation in Czechoslovakia itself has a very bad effect on the market. The fact that ultramarine is sold at all is a tribute to its good quality.



An alcohol distillery. Alcohol from beet sugar is an important industry of the country.

The production of carbide in spite of the fact that the demand is less because of the decreased use of acetylene lights is about the same as in previous years because of its use for autogenous welding. Electrical power is very costly due to the high price of coal and taxation on waterways etc., so that one kilowatt is valued at two and three times that of Germany. If this fact could be altered the cost of production of many chemical products would be lessened.

Extensive Use of Animal Wastes

The utilization of animal wastes in a country is indicative of the economic condition of that country. Czechoslovakia is quite progressive in extensively using its waste products bone and skin. The fats are supplied to the soap industry, glues to the paper industry, gelatin to the photographic and food industries. Unfortunately the merchants do not favor or trust some of the Czechoslovakian products such as spodium, as much as they trust the German products so that this industry suffers considerably by reason of extensive imports from other countries. For instance, 200 cars of spodium are consumed annually, 50 of which are supplied by native plants and the remainder by Germany. It is obvious that Czechoslovakian merchants could produce more, as they are only working to about 20 to 30 per cent. of their capacity. There

is a tendency to ship some of this to Germany and to import it as spodium of German origin. Dry distillation of bone is carried on in four plants. Two hundred cars of animal black are produced yearly. The wastes of this branch of the industry furnish raw materials for making of 7,000 cars of artificial fertilizers.

Seventy-eight plants are engaged in making soap and candles. Seven of these are of major importance whereas seventy-one are small plants producing less than 3,000 cars of soap annually. The other plants produce 5,500 cars. More than half of the candles made are produced in the seven large plants. The chief plants are la Societe Anonyme Georges Schicht

Another of the large number of Czechoslovakia beet sugar alcohol distilleries.

at Usti nad Laben, la Saponia, at Mlada Beleslav, Neratovice, Bohumin, Jaromer and Prague Nusle, and la Centra at Kresice. A number of these are engaged in the special production of castile soap, liquid soaps, and toilet and disinfectant articles.

Lacquers and Dyes

The dye and lacquer industries have also suffered recently from trade conditions. There is very extensive importation of foreign materials at a low price so that the yields of native products is very slight, creating a condition which tends to hinder development. There has been some alteration of the tariff recently and its results are beginning to show in that new factories have sprung up. The effect of high taxes on solvents for this industry also has its effect. Some solvents are taxed at the rate of 30 to 4,500 crowns per kg. Considerable effort is being exerted at the present time to lower the taxes and to produce the solvents in Czechoslovakia. When this state is reached there is no doubt that the lacquer industry will compete favorably with imported products.

There are forty-seven plants producing varnishes, lacquers, oil colors, printing ink, shellacs and mastics. These plants produce special linseed varnishes, resin lacquers, copal, amber, lacquer specialties for waxes, alcohol and turpentine colors, volatile lacquers such as "japan", asphalt lacquers for metallurgy and lacquers for leather and furniture.

Mineral oil has been affected by the decline of trade in other industries. Petroleum and benzine have been used to about the same extent as in previous years but lubricating oils have had a very small market. Much crude oil is imported and refined and then re-exported. Exports have been steadily increasing since 1925. The ever-increasing demand for benzine for automobiles, tractors, etc. should lead to a better market for this product. The tar resulting from the distillation of the oil is used for the making of briquettes. The coke which remains after the distillation of the oils is used for electrodes.

Wood Distillation Industry Crippled

Recent scientific discoveries have had a very disastrous effect on the destructive distillation of wood. Czechoslovakia has very extensive forests and the wood distillation has always been one of its chief occupations. Scientific production of calcium acetate and the making of acetic acid, acetone and the various other products from it has almost totally destroyed this branch of the industry.

The synthetic preparation of metyl alcohol has also hadits effect. At one time eight plants were employed in distilling wood and utilized 200,000 cubic meters of wood yearly.

Lignite is very extensively used for heating purposes and in industrial plants, but the tar resulting from it is not sufficiently appreciated so that this is very often considered waste product. From the point of view of industrial production there is only one plant which treats lignite tar to obtain benzine and solvent oil. The tar made here and there in this manner and in small quantities finds local application for the impregnation of wood and the making of tar coatings. In all its applications neither quality nor origin of the tar seems to enter into consideration.

Mineral Wax From Lignite

Another product that is obtained from lignite is mineral wax or lignite wax. About 100 cars are produced annually for phonograph discs, waxes, etc. The making of tar from oil is intimately connected with the illuminating gas and coke industries. This is much better thought of than lignite tar. The use of ammonia obtained from the industrial gas plants has been mentioned previously. Benzene and toluene taken from it is used for the making of dyes and the dissolving of lacquers, being able to replace gasolene for use as motor fuel and for the extraction of bones. Other derivatives from this industry are pyridine, phenol, picric acid and salicylic acid.

Naphthalene which is used for making a whole series of organic compounds and dyes, and also carbolinium, which is used for the making of black lacquers destined for metals, leather, bituminous coatings and dyes. This branch of the industry is of capital importance for both the chemical and building industries. Some

of the plants fractionate the oil according to the special demands of the trades which they supply. Six plants are engaged in transforming the different fractionation products into dyes, explosives, etc. The plant at Usti nad Laben produces anthracene and alizarin dyes, naphthols, trinitrotoluene, and benzoic acid and its salts. The Chemco plant at Rohatec produces aniline salts and the Etablissment Chimique de Bohumin Associete anonyme produces 220 tons of saccharin annually. The tar is used largely for the making of bituminous paper and the impregnation of wood. About 2¾ million bales of bituminous paper is made yearly. Ten plants are engaged in impregnating wood so that this branch of the industry is one of the most important in Czechoslovakia.

Foreign Pharmaceuticals Preferred

The pharmaceutical industry is another branch in which prejudice plays its part. There is a tendency among the consuming public and the trades to believe that the foreign products are superior to domestic products. The opinion prevails that Czechoslovakia is in need of a tariff such as Italy has whereby any products made in Italy cannot be imported.

The explosive industry is another which is rather extensively exploited. Two thousand two hundred and fifty people are engaged by these factories, four in number, for the making of all explosives.

The artificial silk industry suffers from foreign competition. This field is gradually improving but the Italian, German, and Swiss competitors have had control of the market and have greater capital at their command for research and advertising. The Czechoslovakian product is at least as good as the foreign products but it is very difficult to overcome prejudice.

Protective Tariff Needed

We might continue to enumerate the various other industries of Czechoslovakia such as synthetic chemicals, formic, and oxalic acids, celluloid, rubber, insulating materials, polishes, etc. but we would only find that these were in exactly the same condition as the various other industries, that is, suffering from a lack of protective tariff, foreign competition, overproduction and lack of capital.

The general chemical industry in Czechoslovakia is in a rather bad state. There has been considerable over production with no field for export, dumping of foreign products on their market, and the tendency of the manufacturers to spread out into various fields rather than to specialize and perfect one particular field.

The Vereinigung der Cechoslovakischen Chemischen Industrie is working to protect the chemical industries of this country. It issues yearly reports on conditions and strives to place before the minister of finance and various other officials of the government the exact conditions which exist. Committees are formed for working on these and the Vereinigung has been very fortunate in altering many of the conditions.

Political trade agreements furthering home production and enlargement of exports must be the object of all those interested in stabilizing the economic status of the country. Much must be done to overcome prejudice and certain taxes, such as on alcohol, must be altered so as to further the output of products utilizing these raw materials. It is very unfortunate that so many of the raw materials which might be used to advantage in Czechoslovakia are very heavily taxed, while the taxes on the finished materials are much less heavy. This leads to an importation of finished material rather than raw material and hinders development of new enterprises. Unfortunately the markets for Czechoslovakian goods seem to fluctate very rapidly so that if production is reached for a short time, overproduction results shortly. New sales territory must be built up and importation of finished products discouraged.

Freight Rate Structure Antiquated

The cost of transportation within Czechoslovakia must be lowered. It is very often cheaper for merchants to import from foreign lands than to transport their goods from one section of the country to another. For instance the transport tax from Bulok in Carpathia Russia to a certain place in South Bohemia is 34 crowns, while the transfer tax from the same place to Trieste is 1,980 crowns. Considering these facts, it is not at all difficult to realize why manufacturers can buy untaxed foreign products at a cheaper price than they can bring them from the mines or factories.

Purchase of the Beaver Board Co. by the Certain-teed Products Corp, has been consummated. Through this purchase, Certain-teed increases its business volume by $17,000,000 of sales annually.

Physical properties purchased include 20 modern plants, well located with respect to routing of freight and of serving the diverse territories, and also large land holdings, comprising timber-bearing property in Canada, and gypsum beds in the Southwest.

To meet needs of the enlarged business, there have been issued a new preferred stock for both the present first and second preferred issues, and also $13,500,000 of 20-year debenture 5½% bonds and 93,000 additional shares of common stock.

Caledonian Electro-Chemical Co., Ltd., Glasgow, Scotland, is formed with capital of £47,500, to acquire from C. O. Griffith his entire rights to an electro-chemical process for manufacture of antimony sulfide. According to report, the antimony sulfide can be continuously produced containing not more than 0.06 per cent. free sulfur, but the method may be varied to produce any desired amount of free sulfur up to 34 per cent. Alternately, or in addition, calcium sulfate can be introduced. Company plans to erect plant at Gretna.

United Glanzstoff Corp., Berlin, purposes to increase its dividend to 18 per cent. for 1927, against 15 per cent. for 1926, and will increase capital to 75,000,000 marks, from 60,000,000 of which 7,500,000 marks common shares will be offered shareholders, in ratio of eight shares for each one now held at 125 per cent.

Petroleum's Place
In Manufacturing
Organic Chemicals

By Benjamin T. Brooks

PETROLEUM refiners have been devoting considerable interest to researches in the field of the non-benzenoid hydrocarbons. As a result of the experiments which are constantly being carried on, petroleum is assuming a new significance in the manufacture of various organic products. But when one considers the tonnage or volume of gasoline, fuel oil, gas oil or the major refinery products, and then considers the quantity of the various organic products which can reasonably be imagined as some day being manufactured from petroleum, the number of such organic products which could conceivably consume any great proportion of any of the major refinery products is very small indeed. Twelve billion gallons of gasoline is a lot of gasoline. We have heard a good deal about synthetic methanol, yet the total domestic consumption of methanol was only about 8 million gallons in 1927. Isopropyl alcohol is one of the few products which have been made by chemical processes from petroleum. Yet the cracking still gases from two or three refineries furnished enough propylene, part of which was converted into ispropyl alcohol, to more than saturate the market. These instances illustrate the general rule that minor products, or specialty products, may be lucrative if their manufacture is monopolized or limited to a very few manufacturers, but their effect on the industry at large, or upon petroleum as a raw material is practically insignificant. The point is not that synthetic organic chemical manufacture is unimportant so much as that the petroleum industry is so great.

First Essential of Research

The first essential with respect to any research project is a proper statement of the problem, to define the objective and to see what actual limitations there may be circumscribing the field of projected exploration. Popular chemical addresses dealing with the chemical possibilities of petroleum sometimes sound like a description of a Christmas tree, and if you do not believe in Santa Claus you are not an optimist. But popular addresses are not intended to fool the old folks but to stir up the youngsters with visions so that they will try things.

Popular addresses by ill informed persons probably annoyed Robert Boyle (1627-1691) who wrote in "The Sceptical Chymist"; "If judicious men, skilled in chymical affairs, shall agree to write clearly and plainly of them, and thereby keep men from being stunned, as it were, or imposed upon by dark and empty words, 'tis to be hoped that these men (the Alchemists) finding that they can no longer write impertinently and absurdly, without being laughed at for doing so, will be reduced either to write nothing, or books that may teach us something, and not rob men, as formerly, of invaluable time; and so ceasing to trouble the world with riddles or impertinencies, we shall either by their books receive an advantage, or by their silence escape an inconvenience."

Industrial Changes and Research

There is another aspect of the matter which, I am sure, all who have engaged in research will subscribe to. It is a matter of record that the greatest industrial innovations have grown out of researches of a very fundamental and highly scientific character. Whitney, Mees and Reese have emphasized this fact. The magnitude or importance of a discovery generally seems to vary directly with its remoteness from the obvious. Yet the amount of such scientific work which should be done in the field of non-benzenoid hydrocarbons is enormous, and in general terms the gap between our fundamental chemistry of the hydrocarbons and their utilization for the industrial synthesis of commercial products, is so great that it is at least doubtful if private corporation, or petroleum refineries, are justified in doing *this* kind of research except with the understanding that it is a speculation. In 1922, in the preface to "The Non-Benzenoid Hydrocarbons", it was stated as follows:

"The mechanical art and engineering of petroleum refining has been perfected to a degree which, measured by profit and general utility, deserves commendation, but it is a development which has been very little dependent upon chemical knowledge. More thorough knowledge of the chemistry of the non-benzenoid hydrocarbons will surely result in better and less wasteful methods of refining and may lead to the conversion of petroleum hydrocarbons into other useful products by chemical methods. In the present state

of our knowledge, it would be rash to prophesy what may be accomplished in this direction; but before much work of this kind can be done, a great deal of painstaking, systematic research in the field of the non-benzenoid hydrocarbons must be carried out which may never be utilized directly in an industrial process. The writer does not urge research in this field solely on the ground of the utility of the possible results. Those who attempt to justify scientific research by financial returns do not always have a very strong case, and to attempt to balance any particular industry upon the point of an original scientific discovery is to leave out of account the contributions of a host of other people, which the scientist seldom appreciates. Such arguments convince nobody and often arouse the resentment of engineers and business men and others who know better. The upbuilding of a great mass of information and generalizations, new experimental methods and new substances, in the field of the non-benzenoid hydrocarbons, will enable industry to select certain bits of knowledge suited to further progress and our everyday welfare. Every original investigator making real contributions to the fabric of knowledge is thus a contributor to the common weal.

America's Part Insignificant

This point of view has a very direct bearing on the question of research in the field of the non-benzenoid hydrocarbons. The petroleum, rubber, turpentine and essential oil industries stand in need of further systematic theoretical research in this field of chemistry. Work along broad lines, involving the work of a great many investigators for a great many years, is required. American chemists have heretofore played a singularly insignificant part in this field of research and to realize this it is only necessary to mention the names of Wallach, William H. Perkin, Jr., Semmler, Engler, Grignard, Sabatier and the Russian group, Ipatiev, Kishner, Markownikow, Wagner, Konowalow, Zelinsky, Aschan, Bredt, Ostromuislenski, Lebedev, Gustavson, Charitschkov, and others. All of these men have exercised their influence in universities or technical schools, and the inference may accordingly be drawn that we must look to our American universities, rather than to the petroleum or other industrial interests, to initiate and carry on such research in America. And if the American petroleum industries second their efforts, as the Nobel Brothers have done in Russia, a vast amount of work of permanent scientific and potential industrial value can be done."

It is worth while to note that the most outstanding American contribution to the general chemistry of the aliphatic series and the fundamental theory of organic chemical reactions was made by J. U. Nef, at the University of Chicago. While Nef worked very little with the hydrocarbons, and not at all with petroleum, we utilize his fundamental work every day with profit in the manufacture of solvent alcohols from petroleum, glycols and related compounds from oil gas, and in many industrial syntheses from acetylene.

The present development in the manufacture of solvent alcohols from petroleum, which seems certain to grow to a much greater proportion, is an excellent illustration of the general sequence of events which we may expect to see in other instances of the chemical utilization of petroleum. The fundamental chemistry involved in the conversion of the simple olefins, such as occur in cracking still gases and cracked gasoline, into alcohols by mean of sulfuric acid, and the conversion of alkyl halides or chlorinated gasoline fractions into useful solvents, was investigated and published years ago. The refiner of to-day seeking specialty products may find his opportunity in working out the large scale manufacturing difficulties and even going deeply into the fundamental chemistry of chemical processes which our known organic chemistry shows may be possible, with petroleum as a raw material.

This is not to take a pessimistic view of the possibilities at all, but the organic chemist must take into account, so far as he may, the urgent technical problems of an enormous, live industry. Several years ago I reported what I believed to be a profitable chemical synthesis to the general manager of a large refining company. After a thorough discussion of the matter he gave his decision in about the following words; "The process is all right. We shall do it some day, but just now we are too busy picking huckleberries. The explanation of that phrase is that when I was a boy I used to pick real huckleberries but I never picked all the berries in any one locality or bush but picked as fast as I could where the berries were thickest." I could not sympathize very much with that point of view, but a better knowledge of the industry compels me to agree with it. Two years ago Mr. Walter Miller estimated that the saving to the industry by improved distillation methods of gasoline, over the methods prevailing only a very few years ago amounted to about $140,000,000 per year. Personally I believe Mr. Miller's estimate was very conservative. In the last few years vast sums have also been saved by simplifying refinery operations, reducing vapor losses in the refinery and in oil storage, reducing treating losses by closed continuous systems and eliminating or reducing the amount of sulfuric acid using in refining, improving the recovery of wax, lubricating oils, increasing the recovery of gasoline from natural gas, decreasing the losses occasioned by emulsions both of crude and in refinery operations, decreasing the amount of coke formed in cracking operations, etc. The total dollar value of all these technical advances, largely passed on to the public, is certainly equal to the total value of all the products of the American chemical industry, which is given in Chemical and Metallurgical Engineering for January 1928 from U. S. Census figures, as $613,323,000.

(*Continued on page 458*)

Drying Materials *by the* Film and Spray Systems

By John H. Nair
of Merrell-Soule Company

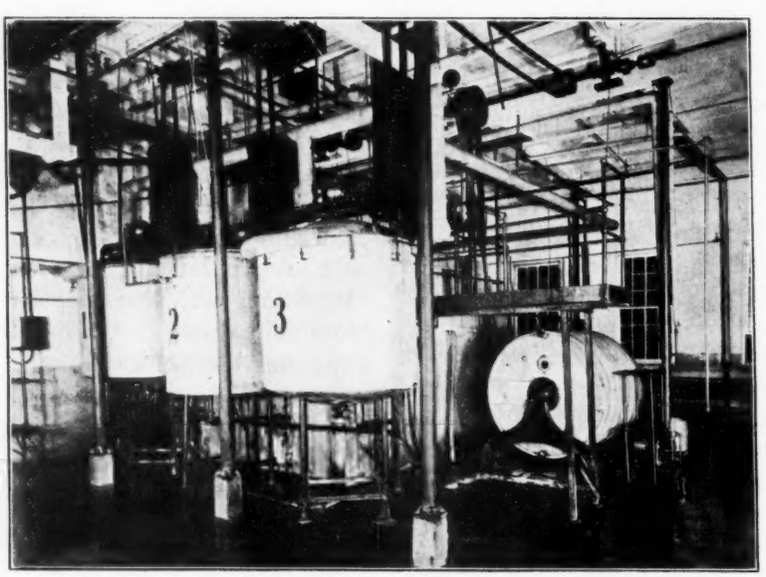
THE subject of drying materials which, from considerations of bulk and weight or spoilage, contain too high a percentage of water, is one of widespread importance to the chemical industry. The possibilities of reaching more distant markets and of increasing the marketable life of any given product are matters of vital concern to the selling and management end of the business. Increasing competition at home and abroad makes imperative the closest scrutiny of any process which will improve the product or reduce the cost of manufacture.

Dehydration is one logical solution of these problems and may be applied in several ways, depending on the character of the material and the desired degree of dryness sought. Since it is the purpose of this article to discuss the matter of desiccation only as applied to the extremely rapid evaporation of water from solutions or suspensions where water is continuous phase, the writer will not attempt to discuss all systems of dehydration but will confine his remarks to film drying and spray drying systems.

There are several well recognized forms of each. The underlying principle of all film drying processes is the spreading of a thin layer of the liquid on a heated, revolving, metal drum, while that of the spray drying processes consists in reducing the fluid to a fine spray or mist in the presence of currents of hot air.

The film drying system has been in use for many years, liquid gelatine having been desiccated by a similar process as early as 1865. The process has been applied to milk on an increasingly large scale from 1900 on. The apparatus used consists of one or more revolving metal drums which are heated with hot water or steam under pressure and which are equipped with an adjustable knife or scraper, located in such a manner as to automatically remove the thin film of dried material from the revolving drum.

The liquid is conveyed to the surface of the cylinder so as to cover the drum with a thin film. One way of doing this is by use of a reservoir extending over the entire length of the drum on its underside, so that the drum, at its lowest side, dips into the liquid. In another system, where two drums are employed, these are set together so closely that the liquid product fed from above is retained on top between the drums. Other methods are the use of a spray, or contact of a large drum with a smaller drum that revolves in the liquid and transfers a thin film of the liquid to the drying roll. In all systems, the drum revolves slowly enough to permit the film to be practically dry by the time the drum has made one revolution, the dried film being automatically scraped off by the stationary knife. The product is then put through a grinder and bolter to reduce it to a fine powder.



Close up of three pasteurization process tanks in the Merrell-Soule plant at Delevan, New York.

The commercial film driers in use to-day are of two types, those in which the drying is done under atmospheric pressure and those in which the drying is done under vacuo. The advantages of film

driers in general lie in their low cost for equipment and the ease of operation. Atmospheric drum driers have the disadvantage that the metal must be heated to relatively high temperatures to effect the dehydration with the result that, in case of materials injured by heat, the finished product is impaired. For certain materials, this disadvantage is of little importance and the relatively low cost of installation and operation of this type of drier give it a preference under such conditions.

Overcoming Disadvantages

The disadvantage caused by the use of high temperatures for drying is partially overcome by enclosing the drums in a vacuum chamber and carrying out the drying under reduced pressure. This arrangement makes possible a somewhat lower operating temperature, and thereby assists in preserving the original qualities in the finished product. In some instances, the reduced pressure arrangement is carried further by maintaining a partial vacuum in the interior of the heated drums. While this procedure lowers the temperature of the heating surface with which the liquid comes in contact, the capacity of the machine is very largely impaired due to the lowered rate of heat transfer.

For a number of years, it has been common commercial practice to remove a considerable portion of the water from fluids without any material injury through condensation in a properly operated vacuum pan. However, this method is limited by the increasing viscosity of the liquid until serious injury begins. This effect is additive as drier states are reached so that common practice has been to spread the viscous fluid on trays with completion of the drying process in tunnel or compartment driers, or to blow heated air through the viscous mass until dryness is reached. The spray process on the other hand carries fluid material from this viscous state reached in the condensing pan to the completely dried condition instantaneously and without injury to the product.

First Commercial Operation In 1905

Although the idea of the spray drying system probably originated some time in the latter part of the 19th century, its successful application on a commercial scale in this country did not occur until 1905, when it was made use of for the drying of milk by the Merrell-Soule Co., at Syracuse, N. Y. Since then, the milk industry, as a result of extensive study and experimentation, has brought spray drying to a high degree of perfection and, in recent years, other industries have adapted this system to special problems of their own. As operated to-day, this method offers the advantages of efficient operation, high percentage recovery, low moisture content, and practically no change in the character of the finished product. The essential parts of any modern spray drying equipment are:

1. A blower fan for propelling the air through the desiccating apparatus.
2. Heating coils for raising the temperature of the incoming air.
3. A drying chamber where the hot air mixes with the atomized liquid and removes the water practically instantaneously.
4. One or more atomizers for breaking up the liquid into a fine mist of spray. In general, these are of two types; either the liquid is forced under very high pressure through a small orifice in a spray nozzle, or the liquid trickles on to a disk revolving at high speed, being atomized by centrifugal force.
5. A collecting devise for separating the fine, entrained dust from the outgoing air. These are of three types; settling chambers where the reduced speed of the outgoing air permits settling; mechanical separators; or a device for washing the outgoing air with a repeated circulation of the liquid to be dried. For dehydrating food products, an air cleanser of either the washing or filtering type is essential to remove dust, specks and foreign material from the incoming air.

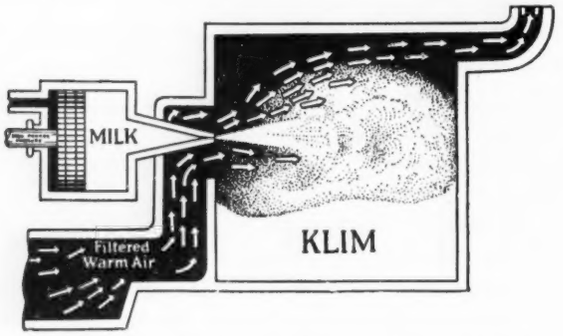
The inherent advantages of the spray drying processes arise from the manner in which dehydration occurs. In film drying systems, (the same is true of tunnel and compartment driers) the heat is applied at one surface of the material while the moisture passes away at another. This necessitates heating the entire body of the material to the dehydrating temperature. In the spray system, the moisture passes away from the surface to which the heat is applied. Each atom of liquid is a spherical droplet and as evaporation proceeds at the surface, there occurs an actual cooling of the material due to the heat absorbed in vaporization. It is evident, therefore, that complete drying should be effected before the particles come in contact with other heated surfaces if the injurious results obtained with other systems are to be avoided. After evaporation has ceased, the temperature of the particle rises to the general temperature of the drying chamber, which should be maintained at a sufficiently low point to produce no injury in the dried particle.

Adaptability of Spray Drying

From the above considerations, it is apparent that spray drying processes are particularly applicable to those materials which are easily injured by heating. The transition from the condition in which the water phase is continuous to that in which the solid phase is continuous is practically instantaneous so that the time factor becomes practically negligible. The results of many careful tests have served to establish this point. For instance, albumen, which is coagulated rapidly at 65°C can be dried by the spray system

without injury, at operating temperatures of 75°C or higher. Bacterial cultures may be dried by this process at temperatures which are considerably above the thermal death point of the organisms.

A brief description of two of the adaptations of the spray drying systems which are in widespread use to-day may be worth consideration at this point. In the Merrell-Merrell-Gere process, U. S. Patent 860929, filtered air is blown through a heating chamber 8 x 4 x 4 feet, or larger, equipped with steam coils and thence through an insulated flue to the center of the side wall of the drying chamber which is rectangular in shape 10 x 8 x 8 feet or larger. The liquid is forced



Photograph produced under actual conditions showing the spray drying operation.

by a hydraulic pump through a feed line to a spray nozzle located in the center of the current of incoming air at the side of the chamber. The outgoing air passes from the opposite side through a mechanical dust collector and thence to the exterior of the building. The dry material is removed through ports or openings in the bottom of the chamber.

In the Gray-Jensen process, U. S. Patent 1078848, air is blown through a heating chamber and introduced tangentially into a conical drying chamber. The milk or other liquid first enters a chamber for washing outgoing air. A supply of milk is kept in continuous circulation through a fluid milk beater maintained at a temperature of 70-75°C. The milk leaves this circulation somewhat concentrated and passes to the spray nozzle in the center of the conical drying chamber where partial dehydration is effected. The moist particles and some air pass then to a Ram's horn pipe arrangement, where pulverizing and completion of the drying are effected. From this point, the powder is delivered to a mechanical separator.

Krause uses the centrifugal type of spray and introduces air at or near the bottom of the chamber, the air passing out at the top through a dust collector.

Costs of Spray Drying

The cost of drying by the spray process depends upon the pounds of water removed in the drying chamber and not on the pounds of dried material produced. Any given unit has a definite cost per hour for operation since the volume of air, power consumed and supervision costs are fixed. By utilizing the principle of pre-condensation of the liquid by means of evaporators, where the efficiency is very close to one pound of water removed for every pound of steam applied, the cost of operation of the drying unit per pound of dry material may be reduced to a very low figure. In addition, each individual particle dries more quickly because there is less water to be given up and the dry particles are considerably denser, two very desirable features.

Let us illustrate with definite examples. Assume a drying chamber which will remove 500 lbs. of water per hour from any liquid. If we spray the fluid in its natural condition, in which it contains, say 10% total solids, we will be able to atomize 555 lbs. of the liquid per hour and will recover 55½ lbs. of solids. If, however, we increase the total solids in the fluid by concentration in a vacuum pan to a point where the total solids are 40%, we will then be able to pass 833 lbs. of liquid per hour through the drying unit and will recover 333 lbs of solids. The cost per pound of dried material for this drying operation will then be one-sixth of the cost where no pre-condensing was carried out. If the material is of such a nature that it will permit of condensation to a point where the solids content is 60%, we would then be able to dry 1,250 lbs. of the liquid in the same unit, per hour and would recover 750 lbs. of solids. The cost per pound of dry material for the spray drying would then be approximately one-fourteenth of that in which no pre-condensing was made use of.

Its Many Applications

The application of this system of drying has been very widespread. Among products which have been successfully dried by this process, may be mentioned milk, egg, nitrocellulose material, citrus fruit juices, dye stuffs, adhesives, tanning liquors, glucose, malt extract, lithopone, bacterial cultures, blood, etc.

From the above considerations, any chemical engineer should be able to arrive at data which will determine the adaptability of the spray drying process to the particular dehydration problem which he may have in hand, bearing in mind that materials which are easily injured by heat are ones for which the spray system is the only answer.

Hungary enters American rayon market with new nitro-cellulose yarn in fine sizes 35, 40 and 45 deniers, manufactured by Magyarovari Muselyemgyar, which is controlled by Hungarian Discount and Exchange Bank of Budapest. The Hungarian rayon will be marketed under the trade-mark "Celoray," and distributed by George Elbogen & Co., Inc. Company is doubling its capacity to take care of American demand. Celoray is the most expensive rayon yarn being imported into United States.

Imperial Chemical Industries, Ltd., places exceptionally large contract for steam turbines, with generators and condensing plant, with Metropolitan Vickers Electrical Co., Ltd. Contract is for nine turbo alternator sets, with aggregate output capacity of 93,000 kilowatts, to form equipment of new power station for the new chemical works now under construction for Synthetic Ammonia and Nitrates, Ltd., as Billingham-on-Tees.

Our Cellulose Source of Supply

An Interview With

Royal S. Kellogg

of Newsprint Service Bureau

NATURAL forests, and not planted forests or some annual crop, will continue to furnish the bulk of the cellulose supply in North America. The many current statements to the effect that it is only a question of time when we will have to develop an annual, in contra-distinction to a perennial, source of cellulose, are not to be given much credence—at least so far as the paper industry in North America is concerned. It is perfectly true that cellulose of good quality can be made from a number of annual crops. It is also equally true that, so far as we are able to anticipate conditions, it is not going to be possible to do so in competition with cellulose from threes.

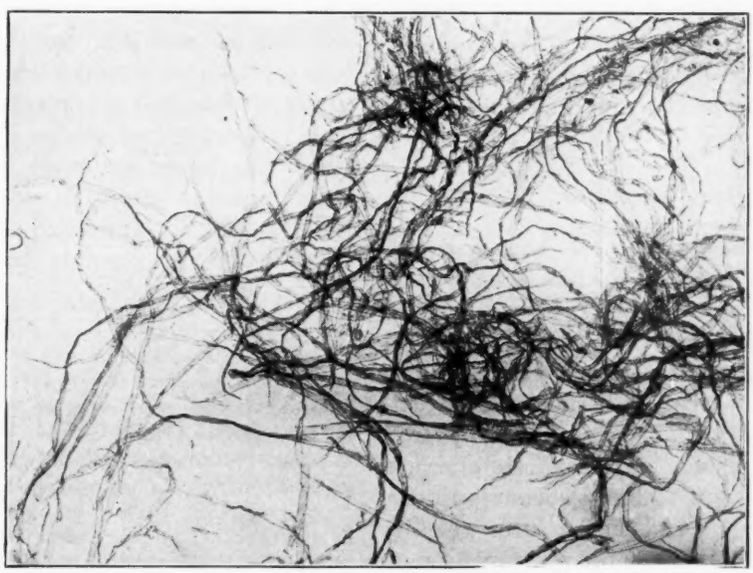
Both the straw from several kinds of grain and from cornstalks yields a good cellulose, but in connection therewith there are practical difficulties of harvesting, concentrating and storage, which are likely to make them impractical from the standpoint of large-scale economic utilization. These materials are likely to be best adapted to the production of straw board, and even this project is subject to strong competition from board made from waste forest material, of which there is a very large quantity in many sections of the country.

There is also a great deal of misconception concerning the exhaustion of pulpwood supplies in North America. The use of wood for the various forms of cellulose constitutes only a very small percentage of the total demand upon the North American forests. Less than five per cent of the total production of forest products went into the manufacture of cellulose last year. This fact alone should show that there is no very immediate possibility of famine insofar as an adequate supply of pulp is concerned.

There are, in addition, species and processes not yet largely used for this purpose, which are very likely to have a considerable development in the future and thus make more supplies of cellulose available than under present practice, without additional supplies of raw material. Heretofore, softwoods alone have borne the burden of practically the total cellulose production. But recently, as a result of intensive experiment, some of the methods used on the softwoods have been adapted to hardwoods. Chief among these are the semi-chemical methods of cooking. By means of this method, instead of the pulp being produced by cooking with chemicals alone, the pulp is only cooked long enough to soften it, after which a mechanical method is used to produce the finished material. In the straight chemical process, only forty-five per cent. of the raw material is finally produced as pulp. In the semi-mechanical method eighty-five per cent. is realized. It is true that the latter product is not the identical material and cannot be used for all purposes, but for many it is just as satisfactory as that formerly produced.

Pulp and paper products are also articles of international commerce and are shipped from long distances. Scandinavia, Finland and Germany are the chief sources of this imported material and although such imports amount to very little as compared with that produced in North America, they could be increased if necessary. Consequently any local shortage of raw material is very likely to be met by cellulose brought from some other place.

Increasing production of rayon is often cited as a further drain upon our forest products. World rayon production in 1927 is estimated at 250,000,000 pounds, of which



Courtesy Newsprint Service Bureau

A photograph of sulfite pulp made from the wood of the spruce tree, magnified to twenty-five times its actual size.

the United States produced about 74,300 pounds, or approximately 30 per cent. of the total supply. The bulk of the rayon production in the United States is by the viscose process in which wood pulp is the chief raw material. In the nitro-cellulose, cupra ammonium and cellulose acetate processes rayon is made from cotton linters. It is usually figured that a ton of bleached sulfite pulp will make 1,500 pounds of rayon. It thus appears that in the neighborhood of 30,000 tons of wood pulp was used in the manufacture of rayon in the United States in 1927. Contrast with this the fact that during that time the total production of sulfite pulp in North America was over two and a half million tons, and the remote possibilities of a famine in that field are quite evident.

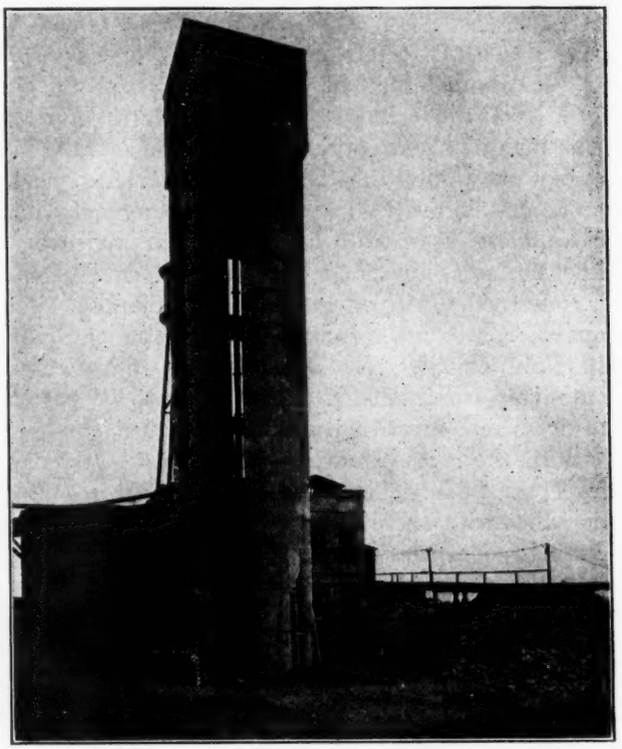
Fire Is Greatest Hazard

The greatest deterrent to forest production is fire. Substantial progress is being made, however, with fire prevention methods on the part of the Federal Government, various state authorities and the larger timberland owners. In addition to this, considerable progress is being made by timberland owners in the application of forestry principles to their holdings, so that eventually they will yield regular harvests of wood. The present McSweeney-McNary Forest Research Bill under consideration by Congress, proposes a national program of research in forestry, including the special feature of wood pulp and wood chemistry, to be under the direction of the Department of Agriculture and subsidized by the government. Research which has been going on at the Forest Products Laboratory has already disclosed many interesting facts concerning forest products in their relation to cellulose. Experimental work in the hybridization of trees is now being carried on in an effort to find an even more efficient wood for producing cellulose. But even if such a tree were produced experimentally, it would have no effect on cellulose production for many years to come. There is a very great deal to be done yet by all interests involved, but developments in fire prevention and practical forestry are extremely encouraging.

Sale Prices Too Low

The greatest hindrance always has been and still is the fact that forest products do not bring a price which pays for the cost of growing, harvesting and reworking the raw material. Nature has been so lavish in providing woodlands that despite the depredations committed on the timberlands of North America in the early days of exploitation, the supply still far exceeds the demand. Consequently prices of forest products are too low to bring adequate return for the services involved. And the producer when he conserves his forest lands by applying principles of forestry is automatically working against a shortage of supply which would eventually give him higher prices. Until the time comes when forest products bring higher prices, there is naturally no very great encouragement for private capital to embark on research, or scientific forestry.

Nearly thirty per cent. of the total timber supply of the United States is in some form of public ownership, but this proportion will not be heavily increased. Consequently it is to the privately owned timberlands, and especially those in the hands of substantial corporations, to which we must look for the larger proportion of our future wood supply. Since for the production of wood cellulose trees of younger age and smaller size can be used than for lumber and other major forest products, it is generally true that manufacturers of pulp and paper are in a better position to raise timber for their own needs than are the industries which use larger material. And as has been said before, it is the natural forests to which we must continue to look for our supply of cellulose supply and all evidence to-day points to the fact that they will not fail us.



Courtesy Newsprint Service Bureau

Close up of a group of acid making towers at a sulfite pulp mill.

Committee in charge of preservative coatings for structural materials of American Society for Testing Materials formulates following recommendations to be presented before annual meeting of society at Atlantic City in June. Committee recommends to advance to standard tentative specifications for Prussian blue, ultramarine blue, chrome oxide green, commercial para red, and titanium-barium pigment; proposes definitions for terms used in specifications; proposes tentative specifications and methods of test for toxic ingredients of the anti-fouling paints; and proposes tentative methods of test for nitrocellulose lacquers.

United States Gypsum Co. plans erection of $1,500,000 plant on recently acquired site at Charleston, Mass.

Preliminary 1927 Census of Dyes

Full Text of the Annual Report on Dyes and Other Synthetic Organic Chemicals, Released at Washington on April 4 by the United States Tariff Commission

PRELIMINARY figures compiled by the U. S. Tariff Commission show that the domestic production of coal-tar dyes for the calendar year 1927 exceeds the production of any previous year in the history of the American dye industry.

Prior to the war the United States was largely dependent upon foreign sources for its supply of dyes. Synthetic colors are essential for the large domestic textile and other dye-consuming industries. In 1927, dyes of domestic production supplied 94 per cent. of our consumption, and there was, in addition, an exportable surplus of the bulk low-cost colors amounting to over 26,000,000 pounds.

The 1927 production of approximately 95,000,000 pounds was an increase of 8 per cent over the production of 1926. The sales of dyes in 1927 were about 98,200,000 pounds, valued at $38,200,000. The increase in sales over 1926 amounts to 13.8 per cent. by quantity, and 5.2 per cent. by value. Other outstanding features of American dye production during the year 1927 were:

Continued price recessions; increase in production of vat and other fast dyes; production of many new fast and specialty dyes; reduction in the number of domestic manufacturers; decrease in dye imports and increase in the quantity and decrease in value of exports.

Vat Dyes Set Production Record

The production of vat dyes in 1927 set a new record with a total of over 4,500,000 pounds, as compared with 4,000,000 pounds in 1926. Before the World War there was no production of vat dyes in the United States and our entire consumption was imported from Germany and Switzerland. These dyes are of the greatest interest to the consumer of fabrics, as they yield shades of exceptional fastness to washing and light, and are largely used on cotton and linen goods.

Many domestic textile manufacturers have in recent years placed on the market a variety of fast dyed fabrics of cotton and linen marked with a trade name and bearing a statement or guarantee as to their fastness. These fabrics are frequently made up into garments, such as dresses, men's shirts, and children's clothing similarly guaranteed. The public at large is thus coming to the realization that although the fast dye is more expensive, the cost of dye per yard of fabric or per garment is, in general, a small fraction of the total cost, and that it is more economical in the long run to invest in the fast-dyed fabrics or garment. The increased consumption of vat dyes is proof of the demand for them.

Dyes and Other Coal-tar Chemicals

A summary of the production and sales of dyes and other finished coal-tar products for the year 1927 is shown in Table 1. The total production of these products exceeds the production of any year since 1918. In this summary photographic chemicals are not included as complete returns have not been received.

TABLE 1
Dyes and Other Finished Coal-tar Products: Domestic Consumption and Sales, 1927

Name of Product	*Sales*		*Production*
	Quantity Pounds	*Value*	*Quantity Pounds*
Finished products:			
Dyes	98,200,000	$38,200,000	95,000,000
Color lakes	11,100,000	6,350,000	11,200,000
Medicinals (a)	3,600,000	7,000,000	3,700,000
Flavors	1,800,000	1,300,000	1,800,000
Perfumes	2,000,000	1,000,000	2,000,000
Synthetic tanning materials and Synthetic phenolic resins	16,800,000	5,800,000	17,100,000
Total	133,500,000	59,650,000	130,800,000

(a) Partly estimated; returns incomplete.

TABLE 2
Production and Sales of Important Dyes for the Year 1927

Colour Index Number	*Name of Dye*	*Sales*		*Production*
		Quantity Pounds	*Value*	*Quantity Pounds*
10	Naphthol Yellow S	91,000	$76,000	84,000
20	Chrysoidine Y	805,000	269,000	702,000
24	Sudan I	45,000	32,000	40,000
27	Orange G	108,000	53,000	80,000
31	Amido naphthol red G	141,000	62,000	122,000
36	Chrome yellow 2G	105,000	52,000	106,000
40	Chrome yellow R	74,000	45,000	74,000
53	Victoria violet	41,000	31,000	54,000
57	Amido Naphthol red 6B	100,000	55,000	81,000
73	Sudan II	28,000	25,000	25,000
79	Ponceau 2R	486,000	199,000	512,000
88	Bordeaux B	93,000	49,000	112,000
138	Metanil yellow	565,000	330,000	562,000
151	Orange II	1,413,000	368,000	1,424,000
165	Lake red C	335,000	324,000	358,000
176	Fast red A	119,000	72,000	.....
179	Azo rubine	144,000	94,000	119,000
180	Fast red VR	200,000	96,000	188,000
189	Lake red R	392,000	315,000	383,000
202	Chrome blue black U	1,097,000	393,000	1,125,000
204	Chrome black A	242,000	93,000	.....
208	Fast acid blue R	191,000	104,000	156,000
216	Chrome red B	49,000	34,000	50,000
234	Resorcin brown B	190,000	120,000	169,000
235	Resorcin dark brown	26,000	18,000	24,000
246	Acid black 10B	1,537,000	598,000	1,488,000
252	Brilliant croceine	230,000	188,000	238,000
258	Sudan IV	33,000	35,000	28,000
262	Cloth red 2B	24,000	21,000	17,000
289	Fast cyanine 5 R	662,000	455,000	618,000
299	Chrome black F	175,000	112,000	134,000
307	Fast cyanine black B	148,000	118,000	132,000

Colour Index Number	Name of Dye	Sales		Production
		Quantity Pounds	Value	Quantity Pounds
326	Direct fast scarlet	285,000	370,000	303,000
331	Bismarck brown	130,000	54,000	75,000
332	Bismarck brown 2 R	454,000	182,000	414,000
364	Paper yellow	112,000	108,000	92,000
365	Chrysophenine G	616,000	324,000	618,000
382	Direct scarlet B	105,000	152,000	108,000
387	Direct violet B	32,000	30,000	.....
394	Direct violet N	45,000	47,000	36,000
401	Developed black BHN	1,054,000	$448,000	1,046,000
406	Direct blue 2 B	1,006,000	261,000	804,000
415	Direct orange R	43,000	24,000	49,000
419	Direct fast red F	143,000	109,000	128,000
420	Direct brown M	133,000	86,000	123,000
448	Benzo purpurine 4 B	490,000	240,000	477,000
495	Benzo purpurine 10 B	35,000	39,000	.....
502	Direct azure G	.....	.....	57,000
512	Direct blue RW	97,000	80,000	87,000
518	Direct pure blue 6B	380,000	257,000	349,000
520	Direct pure blue	198,000	89,000	175,000
539	Direct fast black FF	165,000	90,000	168,000
581	Direct black EW	6,347,000	1,736,000	5,651,000
582	Direct black RX	.....	.....	365,000
593	Direct green B	561,000	242,000	572,000
594	Direct green G	69,000	36,000	95,000
596	Direct brown 3GO	644,000	242,000	566,000
620	Direct yellow R	415,000	165,000	441,000
636	Fast light yellow 2G	49,000	70,000	57,000
666	Acid green B	78,000	80,000	60,000
680	Methyl violet	687,000	604,000	674,000
698	Acid violet	101,000	123,000	85,000
793	Phosphine	162,000	123,000	143,000
812	Primuline	177,000	84,000	161,000
814	Direct fast yellow	213,000	199,000	189,000
865	Nigrosine (water-soluble)	1,400,000	554,000	1,220,000
	Sulfur black	18,965,000	2,558,000	19,002,000
	Sulfur blue	914,000	505,000	961,000
	Sulfur brown	1,733,000	547,000	1,682,000
	Sulfur maroon	335,000	178,000	356,000
	Sulfur olive	223,000	58,000	182,000
	Sulfur tan	188,000	74,000	203,000
	Sulfur yellow	587,000	240,000	715,000
1177	Indigo, 20 per cent. paste	30,609,000	3,700,000	28,438,000
	Benzo fast black L	150,000	148,000	138,000
	Zambesi blacks	386,000	237,000	414,000

The imports of dyes in 1927 recorded a 10 per cent. decline by quantity and 16.5 per cent. by value from that of the previous year. The imported dyes supplied about six per cent by quantity of our consumption and are largely the higher cost types imported from Germany and Switzerland. Exports of dyes recorded a slight increase in quantity but a decline of eight per cent. by value from that of 1926.

TABLE 3

Coal-tar Dyes: Domestic Production and Sales, 1914, 1920-1927

Year	Production	Sales	
	Quantity Pounds	Quantity Pounds	Value
1914	6,619,729	.....	.....
1920	88,263,776	.....	.....
1921	39,008,690	47,513,762	$39,283,956
1922	64,632,187	69,107,105	41,463,790
1923	93,667,524	86,567,446	47,223,161
1924	68,679,000	64,961,433	35,012,400
1925	86,345,438	79,303,451	37,468,332
1926	87,978,624	86,255,836	36,312,648
1927	95,000,000	98,200,000	38,200,000

The weighted average price of all domestic dyes sold in 1927 was seven per cent. less than the average of 1926. The following table shows the trend of the average prices of domestic coal-tar dyes in recent years.

TABLE 4

Domestic Dyes: Weighted Average[1] Sales Price, 1917, 1920-1927

Year	(Per pound)	Year	(Per pound)
1917	$1.26	1924	.54
1920	.99	1925	.466
1921	.83	1926	.42
1922	.60	1927	.39
1923	.545		

1/Total value of all dyes divided by the total quantity.

Price recessions were recorded for both low and high-priced dyes. Indigo, the leading color manufactured in this country shows an average sales price of 12.1 cents per pound in 1927, as compared with 12.8 cents in 1926, and 15.6 cents per pound in 1925. In 1917 the first year domestic indigo was produced it sold for $1.42 per pound. The 1927 price is below the pre-war price when our entire supply was imported from Germany and Switzerland.

Dye Imports Decline

The imports of dyes during 1927 were 4,182,026 pounds, with an invoice value of $3,423,918. This represents a decrease of 10 per cent. by quantity and 16.5 per cent. by value from that of 1926. Total imports in 1914, when our consumption was very largely supplied by imports, amounted to 45,950,895 pounds. On September 22, 1924, the ad valorem duty on dyes and other finished coal-tar products was reduced from 60 to 45 per cent ad valorem, following which there was an increase in the imports, particularly of the vat dyes, certain acid, acid alizarin, and other high cost specialty types. Imports originate almost entirely in Germany and Switzerland.

TABLE 5

Coal-tar Dyes: Domestic Imports, 1920-1928

Period	Quantity	Invoice Value	Monthly Average	
	Pounds		Quantity Pounds	Value
1920	3,402,582	$5,763,437	283,548	$480,286
1921	4,252,911	5,156,779	354,409	429,732
1922	3,982,631	5,243,257	338,850	436,838
1923	3,098,193	3,151,363	258,153	262,614
1924—first 9 months	1,611,931	1,642,632	179,103	182,515
last 3 months	1,410,608	1,266,146	470,203	422,049
Total	3,022,539	2,908,778	251,878	242,398
1925	5,209,601	4,637,240	434,133	386,437
1926	4,673,196	4,103,301	389,433	341,942
1927	4,182,026	3,423,918	348,502	285,326
1928 (total, 2 months)	893,563	718,499	446,782	359,250

The imports of coal-tar dyes in 1927 were 4.4 per cent. of the total production by quantity and nine per cent. by value. They were by quantity about six per cent. of the apparent consumption, assuming this to be equivalent to production plus imports, minus exports. The dyes manufactured in the United States based on preliminary figures, accordingly supplied about 94 per cent. of apparent consumption by quantity. By value, however, domestic production would be considerably less than 94 per cent. of consumption, as the average price of the dyes imported is much higher than the average price of the domestic production. There was an exportable surplus of certain dyes, including indigo and sulfur black.

The total exports of coal-tar dyes in 1927 were 26,766,168 pounds valued at $5,491,466. This represents an increase in quantity, but a decline of eight per cent. by value from that of 1926. The drop in value is due to the gradual lowering of prices in the world's export markets which has resulted from the severe international competition.

Intermediates are manufactured from coal-tar crudes by chemical treatment and are used as raw materials in the production of finished coal-tar chemicals, such as medicinals, dyes, perfumes, flavors,

(*Continued on page 454*)

Chemical Facts and Figures

Discussion of Atomic Structure To Feature Seventy-Fifth A. C. S. Meeting

Parr To Preside at Society Council Meeting Which Opens Session on April 16—Dr. Mayo Will Address Banquet on Wednesday—Rubber Chemical Section Meets Three Days—G. S. Robins Heads St. Louis Executive Committee.

American Chemical Society holds seventy-fifth meeting at St. Louis, April 16 to 19. Following registration of delegates at Hotel Chase, the opening event will be a meeting at two o'clock, April 16, of the council of the society, at which the society's president, Dr. S. W. Parr, professor emeritus of industrial chemistry, University of Illinois will preside. A general public meeting will be held April 17, at eight o'clock and a dinner of the entire society on April 18, at six thirty. At that time Dr. William J. Mayo, Rochester, Minn. will speak on "The Advancement of Learning in Medicine through Biochemistry."

The days will be devoted to divisional meetings at which reports and addresses dealing with many fields of chemical science will be made. A symposium on Atomic Structure and Valence will occupy the Division of Physical and Inorganic Chemistry, Professor George L. Clark, University of Illinois, chairman. At this symposium an attempt will be made to acquaint physicists and chemists with each other's points of view in an effort to arrive at some common basis of understanding regarding the atomic structure.

Speakers will include: Prof. M. S. Kharasch, University of Maryland; Prof. William D. Harkins, University of Chicago; Prof. Samuel C. Lind, University of Minnesota; Prof. G. E. M. Jauncey, Washington University, St. Louis; Karl K. Darrow, Bell Telephone Company; Prof. W. H. Rodebush, University of Illinois; Prof. J. H. VanVleck, University of Minnesota; Prof. W. A. Noyes, University of Illinois; Prof. H. Shipley Fry, University of Cincinnati; Prof. Donald H. Andrews, Johns Hopkins University; Victor Cofman, E. I. du Pont de Nemours & Co.

Progress of the rubber chemist will be described at three-day sessions of the Rubber Chemistry Division, H. L. Fisher, New York, chairman.

Thirty papers dealing with the biochemistry of soils, nutrition, vitamins, ultra-violet irradiations, endocrinology, and the relation of chemistry to health and disease, will be presented before the Division of Biological Chemistry, H. E. Howe, Washington, D. C., chairman.

Agricultural and Food Chemistry Division will hold a symposium on insecticides and fungicides under the chairmanship of Dr. R. C. Roark, Bureau of Chemistry and Soils, Department of Agriculture, Washington.

Division of Chemical Education, headed by Prof. B. S. Hopkins, University of Illinois, will hold sessions lasting four days, and including a symposium on analytical chemistry, Tuesday, April 17. Many prominent chemistry educators will speak.

Division of Industrial and Engineering Chemistry, R. J. McKay, New York, chairman, will take up lubrication, filtration, and equipment construction. Among the speakers will be R. E. Wilson, assistant director of research and chemical engineer, Standard Oil Co. of Indiana; D. R. Sperry, director, D. R. Sperry and Co. North Aurora, Ill., and W. T. Read, head of Department of Chemistry, Texas Technical College, Lubbock, Texas.

At a meeting of the Division of Water, Sewage, and Sanitation, S. E. Coburn, Boston, chairman, these subjects will be discussed: "Treatment of Water for Railroad Use," "Recent Advances in the Softening of Municipal Water Supplies," "Softening of Water in the Home," and "Phases of the Utilization of Colorado River Water in View of the New Data on the Dissolved Mineral Matter and Silt Carried by the River."

Divisions will meet in the Hotel Chase, where the Registration Bureau of the convention will be located; the Buckingham Hotel, and the Forest Park Hotel. The Rubber Division will hold its meetings in the Hotel Coronado. A series of luncheons, dinners, and receptions are among the social functions planned. Trips to St. Louis industries and points of historic interest will be made.

G. S. Robins, G. S. Robins and Co., 316 South Commercial Street, St. Louis, is chairman, Executive Committee in charge of arrangements for the convention. Other St. Louis committee chairmen have been named as follows: Finance, H. A. Carlton, Mallinckrodt Chemical Works; Divisional Meetings, L. A. Watt, Monsanto Chemical Works; Hotel Arrangements, Eugene S. Weil, G. S. Robins and Co.; Registration, T. R. Ball, Washington University; Transportation and Plant Visits, J. R. Eoff, Anheuser-Busch; Entertainment, Ralph R. Matthews, Roxana Petroleum Company; Ladies' Entertainment, Mrs. R. R. Matthews; Speakers Committee, F. W. Russe, Mallinckrodt Chemical Works; Program, A. F. Schlichting, St. Louis College of Pharmacy; Publicity, Chas. W. Rodewald, Washington University.

J. T. Baker Co. Establishes Fellowship

J. T. Baker Chemical Co., Phillipsburg, N. J., establishes the J. T. Baker Company Fellowship in Analytical Chemistry, to the value of $1,000 annually. The fellowship is limited to qualified institutions which grant a doctor's degree in chemistry in the states of Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin. It will usually be awarded to students specializing in analytical chemistry who can devote practically their full time to the doctor's thesis. Permanent members of the distributing board are H. H. Willard, University of Michigan; C. W. Foulk, Ohio State University; Stephen Popoff, Iowa State University; and G. Frederick Smith, University of Illinois.

Barium Carbonate Duty Advanced ½c Lb.

President Coolidge issues proclamation increasing duty on precipitated barium carbonate to one and one-half cents from one cent a pound to meet German competition. This came as result of investigation by Federal Trade Commission into foreign and domestic costs instituted Feb. 20, 1925, upon application of the three domestic producers: Bertha Mineral Co., Newark; Barium Reduction Co., Charleston, W. Va.; and Chicago Copper & Chemical Co., Chicago. Findings of commission were made public April 22, 1927 (CHEMICAL MARKETS, April 28, 1927).

Charles H. Herty, technical advisor, Chemical Foundation, testifies before House Committee on Foreign Affairs that proposed Burton resolution, which would prohibit exportation of arms to belligerent nations, would benefit foreign manufacturers of chemicals at expense of American producers.

Institute of Chemistry Announces Plans for 1928 Evanston Meeting

Institute of Chemistry, American Chemical Society, announces tentative program for 1928 session at Northwestern University, Evanston, Ill., beginning July 23. Conferences will be held from 10.20 A. M. to 1 P. M. daily and from 3 to 6 P. M. on Saturdays. There will be seven conferences each week. During the week of July 23, conferences will be held on the general problem of developing new markets other than food for agricultural products, by means of chemistry. During the following week there will be conferences on fertilizer, catalysts, hydrogenation, organic chemistry (two), antioxidants, and the utilization of energy of high intensity in producing chemical reactions. Petroleum, resins, lacquers and paints, chemical hazards, health (two), and the use of physics and chemistry in studying life processes, will be the subjects of the third week's conferences. The concluding week, that of August 13, will be devoted to discussions of sanitation, the packing industry, leather, chemical literature, ceramics, alloys and chemistry and the other sciences in national defense.

Among the lecturers will be Harry N. Holmes, Oberlin College; B. Smith Hopkins, Illinois University; Victor K. La Mer, Columbia University; W. T. Read, Texas Technical College; Gerald Wendt, Pennsylvania State College; and Frank C. Whitmore, Northwestern University, Sir James Irvine, University of St. Andrews, Scotland, may also give one or two lectures.

Oil Trade Association, New York, holds annual business meeting March 20 at Hotel Commodore. Following officers were elected: president, J. T. Skidmore, Tide Water Oil Co.; vice-president, R. E. E. Hood, Marland Refining Co.; secretary, J. C. Smith, Smith-Weihman Co.; treasurer, Philip C. Mein, Bourne-Scrymser Co. Directors were elected as follows: H. Mart Smith, W. R. Grace & Co.; A. J. Squier, Warren Lubricants Co.; A. A. Hoffman, American Oil & Supply Co.; W. L. Koburger, W. L. Koburger Co.; George Suraud, Chelsea Oil & Supply Co.; H. W. Sherrill, Welch, Holme & Clark Co.; and C. T. Weihman, Smith-Weihman Co.

Interstate Cottonseed Crushers' Association prepares for thirty-second annual convention at Hotel Roosevelt, New Orleans May 16-18. E. T. George, New Orleans, chairman, local arrangements committee, has appointed following special committee chairmen: A. F. Aschner, reception; E. P. Chivers, hotel reservations; D. W. Feitel, ladies and automobiles; W. E. Jervey, golf; A. M. Junge, registration and badges; H. J. Landry, publicity; J. Murphy, markets; H. P. Rowley, Jai-Alai; and I. T. Rhea, banquet.

Dr. Edward R. Weidlein, director, Mellon Institute of Industrial Research, Pittsburgh, announces that the Whiting Corp., Harvey, Ill., has established in the institute an Industrial Fellowship, whose holder, Dr. Edward E. Marbaker, will conduct research in cast iron. Results of these investigations will be published for general benefit of foundry industry.

Dr. Julius Klein, director of U. S. Bureau of Foreign and Domestic Commerce, tells Export Managers' Club that formation of European cartels, by eliminating distributive wastes and excessive competition, has aided the marketing of American products abroad.

Virginia Section, American Chemical Society, holds annual convention, April 14, at Hotel Patrick Henry, Roanoke, Va. The chief speaker at the dinner was William Joseph Showalter, editor, National Geographic Magazine.

Dr. Harvey W. Wiley speaks on "My Early and Late Training in Chemistry" at the April 9th meeting of North Jersey Section, American Chemical Society.

Ansco-Agfa, Inc., Formed By Merger

Ansco-Agfa, Inc., is formed at Binghamton, N. Y., March 19, by merger of Ansco Photo Products Co., Agfa Products, Inc., and Agfa Raw Film Corp. Outstanding stock of new corporation includes $5,500,000 of 7 per cent. cumulative preferred and 300,000 shares of common of no par value. Officers of the new company are: Horace W. Davis, president; Walter Lenger, Carl Bornman, Rudolph Worch, John I. Norton and Sherman Hall, vice-presidents; Rudolph Worch, treasurer; Otto Von Schrenk, secretary; and C. E. King, assistant secretary. Board of directors includes: Herman A. Metz, president, General Dyestuff Corp.; Almuth V. Vandiver; and Paul M. Warburg.

In this connection, CHEMICAL MARKETS, February, 1928, says "the German chemical combine (I. G.) is said to be aiming to enter the film manufacturing business . . . It is learned that the control of an important company in this field will presently be taken over by an I. G. representative now in this country. The company has already established a subsidiary here to represent its interests in this field under the name of Agfa Raw Film Corp. and it is possible that the new acquisition will be merged with this company."

Favorable Soda Deposit Report to Senate

Senate Committee on Public Lands and Surveys, on March 30, orders a favorable report to the Senate on the bill (S. 3375), which would amend the general leasing Act of 1920 with respect to disposal of sodium deposits discovered by permittees under that Act. Senator Oddie (Rep.), of Nevada, is the author of the bill.

The Oddie bill would permit a permittee who discovers sodium to lease the entire area covered by his permit, instead of only one-half of it as under the present law. The bill would also reduce the minimum royalties on sodium from 12½ per cent. under existing law to two per cent. and would reduce the rental charges from 50 cents to 25 cents per acre for the first year and from $1.50 per acre for the second, third, fourth and fifth years.

Robert Weatherly, formerly assistant sales manager, is promoted to position of sales manager, Federal Phosphorous Co., and other subsidiaries of Federal Electrochemical Co.; i.e., Federal Carbide Co., Federal Abrasives Co., and Southern Manganese Corp. He will make his headquarters at main officies of companies, Birmingham, Ala. George B. Cunningham is appointed assistant sales manager, Federal Phosphorous Co.

Canadian Finance Minister announces that the free list for raw or partly finished materials required for industrial purposes has been extended and includes the following: preparations or chemicals for disinfecting, dipping, or spraying; flake calcium chloride for road treating; xanthates, cresylic acid and its compounds used for concentrating ores, metals, etc.; crude petroleum imported by oil refiners.

United States Tariff Commission recommends to President that the temporary embargo against importation of laminated fibre sheets made with phenol resins, be made permanent. This is final report of investigation instituted by the Commission on complaint of Bakelite Corp., New York, against importers of this product, claiming infringement of American patents and trade-marks and unfair competition with American products.

At meeting of creditors of London branch, Suzuki & Co., Ltd., it was found that liabilities totaled £100,668 and assets £2,872. It is hoped that £15,000 will be remitted from home office for creditors in England.

Oil Seed Crushing Corp. acquires Maryland Vegetable Oil Corp., formerly known as Cocoa Nut Products Corp., with plant at Canton.

Canadian Agricultural Head Sponsors New Stringent Fertilizer Amendments

(*Special to CHEMICAL MARKETS*)

Montreal, Que.—A general tightening of the Canadian Fertilizers Act, the stopping of a number of gaps that formerly existed, and the fuller protection of the farmer, horticulturist and market gardener against vendors of inferior or dangerous fertilizing products, is the aim of a series of amendments which Hon. J. Motherwell, Minister of Agriculture, is now piloting through the Dominion parliament.

These amendments put the mail order vendor on the same footing as the person stocking the material locally. They make more specific the terms as to chemical contents of fertilizers. They forbid the advertising of a product in Canada unless it has been registered for sale.

Text of the principal amendments follows:

"No person shall manufacture, import *or advertise* any fertilizer for sale in Canada, unless each brand is *first* registered with the Minister and a registration number assigned to it."

"*If the applicant for a registration number be non-resident in Canada, the application shall be signed by a representative or agent in Canada of the applicant as well as by the applicant himself, and shall contain an undertaking by the agent or such representative to be held responsible for due compliance with the provisions of this Act.*"

"No person shall advertise, offer, sell, expose or hold in possession for sale in Canada,

"(*a*) any fertilizer *except as provided by regulation*, unless it contains not less than two per cent. of nitrogen or five per cent. of available phosphoric acid or two per cent. of potash soluble in water, and not less than a total of *fourteen per cent.* of nitrogen, available phosphoric acid and potash soluble in water, or

"(*b*) *any substance or material claimed to possess properties beneficial to soil fertility or plant growth unless such claims are substantiated by experimental evidence acceptable to the Minister.*"

"No person shall *advertise*, offer, sell, expose or hold *in possession* for sale any *potash* salts containing more than *five-tenths* of one per cent. of anhydrous borax, *or mixed fertilizer containing more than one-tenth of one per cent. of anhydrous borax, or any fertilizer containing sufficient destructive ingredients or properties which may prove harmful to plant growth when the fertilizer is used in a reasonable manner.*"

(The italics indicate new wording which was not in the original Fertilizers' Act.)

Allied Chemical & Dye Corp.'s $100,000,000 atmospheric nitrogen plant at Hopewell, Va., occupying an area of 540 acres, is expected to begin production of some products in August. The $3,500,000 power plant is to be completed by June 15 and every effort is being made to have the rest of the unit in operation as soon after that time as possible. The force of 2,000 men now working on this construction may be augmented to accomplish this.

I. G. Farbenindustrie begins construction of new fourteen story office building in Frankfort, Germany. Company now possesses its own pipe and tube manufacturing plant through acquisition of new Troisdorf plant of Rhine Westphalian Explosives Co.

New York group, Rubber Division, American Chemical Society will meet in Town Hall, April 25, at which time there will be a dinner followed by an address on "Guayule Rubber", by David Spence.

Consolidated Mining and Smelting Co. is experimenting with superphosphate manufacture at its British Columbia plant.

American Linseed Co., reopens Philadelphia office in Public Ledger Building with J. E. Jones as resident manager.

William G. Gundelfinger Dies

William G. Gundelfinger, vice-president, Diamond Alkali Co., Pittsburgh, dies March 18, aged 48, in St. Joseph's Hospital, Philadelphia, after an operation for appendicitis. His home was in Grafton, Pa., suburb of Pittsburgh, and he had left a few days previously to go to Philadelphia on business.

William G. Gundelfinger

Previous to entering the chemical business, Mr. Gundelfinger, was associated with the Commonwealth Trust Co., Pittsburgh. He left there to go with the Diamond Alkali Co. and has been with the latter company practically since its organization in 1912.

He was a member of the Presbyterian Church, the Masons, the Duquesne and Union Clubs of Pittsburgh, the Chartiers Heights Country Club and the Mid-Day Club of New York.

Societa Italiana Ammonia, Milan, Italy, one of the affiliated companies of the "Montecatini" group, with capital of lire 100,000,000, acquires Societa Alto Adige Ammonia, capital, lire 40,000,000; Societa Piemontese Ammonia, capital, lire 8,000,000; and Societa Meridionale Ammonia, capital lire 10,000,000. All four companies produce synthetic ammonia by Fauser process. The merger gives "Montecatini" control of practically the entire production and sale of synthetic ammonia and its products in Italy.

Societe de Chimie Industrielle, American Chemical Society, American Electrochemical Society, and Society of Chemical Industry, hold joint meeting April 6 at the Chemists' Club, New York. Dr. Atherton Seidell, U. S. Public Health Service, spoke on "The Berthelot Centenary and the Resulting International Efforts to Advance Chemistry"; and Heinz Rosenberger, C. E., Physicist, Rockefeller Institute for Medical Research on "Microcinematophotography as an Aid to Science".

Federal Trade Commission issues complaint, March 16, charging Royal Baking Powder Co. with unfair methods of competition in circulating report of the commissioner's trial examiner in a previous case involving the company, exploiting the fact that its product contains no alum, with the implication that baking powders containing alum are harmful.

Hearing scheduled for March 28 by the House Committee on Mines and Mining on the Winter bill (H. R. 496) to authorize appropriation of $250,000 for investigation of potash deposits in the leucites of Wyoming, is postponed until a future date.

Dr. Henri Dreyfus, president, British Celanese, Ltd., issues statement saying he had rejected offers made by Courtaulds-Glanzstoff group to include British Celanese in the international rayon combine.

Michigan Fertilizer Co. announces that new plant at Lansing will begin operations about May 1.

Du Pont Rayon Co. begins construction of $8,000,000 plant at Ampthill, Va.

Personal and Personnel

Dr. Frank C. Whitmore, chairman, Division of Chemistry and Chemical Technology, National Research Council, and head of the Department of Chemistry, Northwestern University, speaks on "The Habits of the Atoms" and "The Future of Chemistry and the Chemist," during the annual "Students' Meeting," held under auspices of Indianapolis Section, American Chemical Society, April 13 and 14.

Karl B. Thews, formerly vice-president, Pittsburgh Lacquer & Chemical Co., joins firm of Thews-Harbison-Thews, Inc., consulting chemists and metallurgists, Mulford Bldg., Philadelphia. He will take charge of chemical division, while retaining his office of secretary and treasurer, American Chemical Co., Pittsburgh.

Eduard Grosse, one of the directors, E. de Haen, A.G., Germany, arrives in New York, March 30, in company with Frank M. Bauer, president, Pfaltz & Bauer, New York. He is in this country for an indefinite period to study industrial conditions.

W. E. Moore, comptroller, E. I. du Pont de Nemours & Co., is elected vice-president, and B. L. Ward, treasurer, du Pont National Ammonia Co., is elected comptroller of du Pont Rayon Company.

Braxton R. Nagel, formerly with Warner Chemical Co., is now selling packaged tri-sodium phosphate and carbon tetrachloride, as the Elgan Products Co., with offices in the Graybar Building, New York.

John A. McCarthy, formerly treasurer, is elected president, Pennsylvania Sugar Co., Phila., to succeed the late George H. Earle. W. H. Hoodless is elected vice-president and continues as managing director.

R. J. Snelling, formerly general manager, Pittsburgh Lacquer & Chemical Co., takes charge of lacquer consulting and research work with Thews-Harbison-Thews, consulting chemists, Philadelphia.

Russell R. Brown, president, U. S. Industrial Alcohol Co., is confined to St. Luke's Hospital, New York, where he is recuperating from an abdominal operation.

Edgar M. Queeny, vice-president and general sales manager, Monsanto Chemical Works, is elected to board of directors, Mercantile Trust Co., St. Louis.

Louis L. Robbins, Slater-Robbins Co., New York, returns from extended trip in the Orient, where he studied the markets of China, Japan, and the Philippine Islands.

Richard Beselin, assistant treasurer, Charles Hardy, Inc., New York, after a short trip to the Pacific Coast, will sail May first, to open a branch office in Hamburg.

N. H. Graesser, managing director, Graesser-Monsanto Chemical Works, Ruabon, North Wales, and Dr. M. Liebert, a director of same company, visit Monsanto Chemical Works, St. Louis.

Walter M. Scott, formerly with sales department, National Aniline & Chemical Co., becomes sales manager, Munsell Color Co., Baltimore, Md.

S. Willard Jacobs is elected vice-president, Electro Bleaching Gas Co. and Niagara Alkali Co., New York.

F. W. White, president, Mutual Chemical Co., New York, returns from a vacation in Florida.

Prof. Theo. W. Richards Dies

Professor Theodore William Richards, since 1901 head of the chemistry department, Harvard University, and in 1914, winner of the Nobel Prize for special achievement in the field of chemistry dies April 2, aged 60, at his home in Cambridge, following a few weeks illness.

He was born in Germantown, Pa., Jan. 31, 1868. He was graduated from Haverford in 1885, and in the following year he received the degree of A.B. from Harvard. The degrees of A.M. and Ph.D. at Harvard followed in 1888. He continued his studies at the University of Goettingen, Leipzig, and the Technical School in Dresden. The degree of Sc.D. was conferred upon him by Yale in 1905; LL.D. by Haverford in 1908; Chem.D. by Clark University in 1909; Ph.D. by Royal Bohemian University Prague, 1909.

From 1894 to 1901 he was Assistant Professor of Chemistry at Harvard and since 1901 he had had charge of that department. He was associate editor of three chemical periodicals, member of the International Committee on Atomic Weights; adviser, Carnegie Institute, 1902; research associate since 1902; investigator in physical and inorganic chemistry; member of National Academy of Sciences.

He received the Navy Medal of the Royal Society, London, in 1910; Faraday Medal of the Chemical Society, London, 1911; Willard Gibbs Medal of American Chemical Society, 1914, and Franklin Medal from the Franklin Institute in 1916.

The award of the 1914 Nobel Prize in chemistry, carrying with it the sum of $40,000, followed as world recognition of his achievement, in determining the atomic weights of thirty of the elements. In recent years he had largely devoted his attention to problems in physical chemistry.

Dr. Thomas B. Freas, professor of chemistry, Columbia University, fellow of American Association for the Advancement of Science, and president, Thermo-Electric Instrument Co., Newark dies in New York, March 15, aged 60. He was the inventor of many practical chemical devices including thermometers, ovens, incubators, ventilating apparatus and laboratory desks.

Charles Widdrington Tinling, president, National Drug & Chemical Company of Canada, and vice-president, Palmers, Ltd., Montreal, dies on board the S. S. "Laurentic" while on a Mediterranean cruise. He was 64 years old and had resigned as general manager of the former company on February 1 due to poor health.

Orison B. Smith, senior partner, J. Lee Smith & Co., New York, dry colors, dies March 14, aged 81. The firm was organized by his father in the early forties, and he became a partner in 1869. Although retaining an interest in the business, he retired from active participation in 1910.

Edwin Webster Sanborn, who fifteen years ago retired from American Agricultural Chemical Co. because of ill health, dies March 18 aboard the S. S. "California" on his way from New York to San Diego, aged 71.

G. W. Koiner, Virginia Agriculture Commissioner, warns farmers against certain spray insecticide being offered for sale with claim that if sprayed on ground or on seed, it will prevent insect infestation later.

Hercules Powder Co. is enlarging facilities at its Hopewell, Va. plant. Forty-two acres have been purchased from Tubize Artificial Silk Co., at reported price of $17,000 for this purpose.

Chemical Foundation completes indexes to its patents. Separate indexes include numerical; subject; inventor; assignee; foreign patents; and U. S. patents.

State Sues Texas Gulf And Freeport For Alleged Tax Misunderstanding

Suits for approximately $1,500,000 claimed as due and unpaid taxes, penalties and interest, are filed in Austin, Texas, district court by the state against Freeport Sulphur Co. and Texas Gulf Sulphur Co.

Companies are charged with reporting the average market price of sulfur for taxation from June, 1923, to January 1, 1928 at a fixed figure of $10 a ton, which the state claims is too low.

Judgment for $508,688.25 is asked against Freeport and $991,-149.17 against Texas Gulf representing difference between tax reports and what state claims should have been reported plus 10% penalty and interest.

Suits are said to be the result of indefinite language in the law imposing occupation tax on sulfur production, passed by the legislature of Texas in 1923. The law used the term "average market value of the sulfur produced" as the basis of the tax. The cause of the misunderstanding is the meaning of market value as applied to sulfur.

The difficulty of administering this law was recognized immediately after it was enacted and the sulfur companies agreed with officials of Texas upon a basis of payment. Taxes have always been paid on that agreed basis.

It is reported that the present comptroller does not admit this basis is correct and refuses to accept payment of taxes made in the customary manner, and that the companies, therefore, suggested presenting interpretation of the law to the courts to avoid future misunderstandings.

Court of Special Sessions, New York, decides that it is illegal for any manufacturer to label his product shellac if it contains any ingredient besides the product of the Tachardia lacca dissolved in alcohol. Decision was in action brought by American Fair Trade Association against Acme Shellac Products Co., Long Island City, under Section 421 of penal law against faulty advertising, known as "Printers' Ink Statute." Company was fined $250 for marketing as "white shellac" an adulterated product.

August Diehn, general manager, German Potash Syndicate, and August Rostberg, general manager of the Wintershall plant of the syndicate, plan to visit the United States to inspect publicity and sales departments of Burwax, which is the German Potash Syndicate, as well as the Societe Commerciale des Potashes de Alsace. They also intend to confer with representatives of the American fertilizer industry, farmers' organizations, and bankers.

Japanese Department of Commerce and Industry is reported to be contemplating increase in duty on dyestuffs. Recent increase was apparently made to protect home industry against American dyestuffs and results have been satisfactory. Importations have fallen off without advancing prices, the Nippon Dyestuffs Co. meeting all requirements

John F. Queeny, chairman of the board, Monsanto Chemical Works, and John L. Green, president, Laclede-Christy Clay Products Co., are elected to board of directors, Manufacturers' and Merchants' Association, St. Louis.

Dr. B. Youngblood, resigns as director, Texas Agricultural Experiment Station, to continue development of cotton utilization program of Bureau of Agricultural Economics, Department of Agriculture.

Newport Chemical Works, Inc., Passiac, offers new vat dye, Anthrene Yellow AG Double Paste, recommended for rayon, cotton, silk and wool, but not for cellulose acetate yarns.

Virginia Cellulose Co., Inc., subsidiary of Hercules Powder Co., Wilmington, Del., is erecting $150,000 boiler plant at Hopewell, Va.

News of the Companies

Corona Chemical Co., New York files suit against prohibition administrator for restoration of its permits for use of specially denatured alcohol. Company claims it has never been involved in any violation of prohibition laws and needs permit in order to carry on its business.

Texas Gulf Sulphur Co. will move executive offices early in 1929 to the new New York Central Building, at Park Ave., between 45th and 46th streets, New York, where the company has leased entire thirty-first floor with net area of approximately 13,000 square feet.

Union Sulphur Co. files suit in Wharton County, Texas, against Texas Gulf Sulphur Co., Gulf Production Co., James F. Weed, E. Orgain, Jesse W. Stuart and R. L. Stuart for alleged violation of lease to 400 acres of land in that county.

The Celluloid Corp., recently acquired subsidiary of the Celanese Corp. of America, awards contract for erection of three chemical factory units at Amcelle, near Cumberland, Md., at a cost of $1,500,000. Plant will produce cellulose acetate

Lazote, Inc., Wilmington, Del., which manufactures ammonia, methanol and other products at Belle, W. Va., receives authority to double the capacity of the establishment, and a contract for the work has already been awarded.

Cornstalks Products Co., Danville, Ill. begins production of alpha cellulose, gum substitute and industrial alcohol from cornstalks. Company also plans a paper pulp substitute plant at Tilton.

E. I. du Pont de Nemours & Co. acquires minority stock of du Pont National Ammonia Co., thus obtaining complete ownership. At same time du Pont acquired holdings of same group in Lazote, Inc.

Dyestuffs Department, E. I. du Pont de Nemours & Co., announces following new colors: Ponsol Blue GZ Paste, a vat color; Sulfanthrene Scarlet G Paste; and Leucosol Blue G Paste.

A. E. Staley Manufacturing Co., Decatur, Ill., elects Henry Lockhart, Jr., of Blair & Co., Inc., and Arnold Stifel of Stifel, Nicolaus & Co., St. Louis, to board of directors.

Alsop Engineering Co., New York, publishes new catalogue of "Hy-Speed" Electric liquid filters and pumps, which will be mailed upon request to the company.

Kentucky Alcohol Corp., New York, appoints National Oil & Supply Co., Newark, as agents and distributors for entire section of Northern New Jersey, including Trenton.

Warner Chemical Co., New York, announces addition to its sales force of C. N. Hollwedel, formerly of resale department, Grasselli Chemical Co.

Golding Sons & Co., Trenton, begin production at new feldspar grinding plant at Spruce Pine, N. C. Plant has capacity of from 80 to 100 tons per day.

Dyestuffs Department, E. I. du Pont de Nemours & Co., offers new direct dyestuff under name of Pontamine Light Brown 4G.

William S. Gray & Co., New York, is appointed exclusive sales agents for Wood Distillers Corp., Olean, N. Y.

The Financial Markets

Allied Chemical 1927 Earnings of $10.03 Set Record For All Time

Income of $24,586,873 Compares With $24,072,820 or $9.79 in 1926—Property Account Higher—Investments Also Up—Montecatini Yearly Dividend At 18 Lire—Absorbs 13 Other Companies—Union Carbide 1927 Earnings Up.

Allied Chemical and Dye Corp. and subsidiaries report for 1927 shows net income of $24,586,873, after depreciation, obsolescence, Federal taxes and other charges, equal after preferred dividends to $10.03 a common share, a high record for all time, compared with $24,072,820, or $9.79 a common share, in 1926, and with $20,566,592, or $8.18 a share, in 1925.

Surplus account for 1927 shows total surplus of $170,681,974, against $161,913,689 at the end of 1926, after dividends of $15,818,597. In December, 1926, common dividend was increased from $4 to $6 per annum, which resulted incommon dividends of $13,068,654 in 1927, comparing with $9,801,490 in 1926.

A net increase of $8,366,214 is shown in the property account, which stands at $173,496,222. Current assets amount to $145,721,908, against current liabilities of $9,254,643, against $144,028,503 and $9,926,088 in 1926, leaving working assets at a record high.

Investments were $1,824,003 higher at $8,115,382, cash and U. S. Government and other marketable securities were $7,650,769 higher, while inventories were $4,295,619 lower. Receivables declined $1,661,745. Reserves were $5,571,265 higher at $119,442,514.

Montecatini Declares 18 Lire Dividend

Montecatini Societa Generale per l'Industria Mineraria e Agricola, Milan, Italy, declares yearly dividend of 18 lire a share. Company also absorbs thirteen companies with capital of lire 110,750,000. These are "Oleum" Society, Milan, capital lire, 6,000,000; "Marchigiana" Fertilizers & Chemical Products, Rome, capital lire 15,000,000; Industrial Fertilizers Co., Milan, lire 2,000,000; Tito Campanini & Co., Faenza, 1,500,000; Sicilly Chemical Products Co., Palermo, lire 16,000,000; Sardinia Fertilizers & Chemical Products, Milan, lire 10,000,000; Mines of Calceranica, Padua, lire 1,250,000; Venice Fertilizers & Chemical Co., Milan, lire 40,000,000; Ligure-Lombarda Chemical Products Co., Milan, lire 4,000,000; Bologna Fertilizers & Chemical Co., Bologna: lire 3,000,000; Pordenone, lire 3,000,000; Chemical Products for Agriculture Co., Lendinara, lire 4,000,000; Superphosphate Co,. Lendinara, lire 5,000,000.

Union Carbide 1927 Net at $25,340,661

Union Carbide & Carbon Corp., New York, and subsidiaries report for the year ended Dec. 31, 1927, net income of $25,340,661 after depreciation, depletion and Federal taxes, equal to $9.52 a share on the 2,659,733 capital shares outstanding. This compares with $24,142,607, or $9.08 a share in 1926.

The consolidated income account compares.

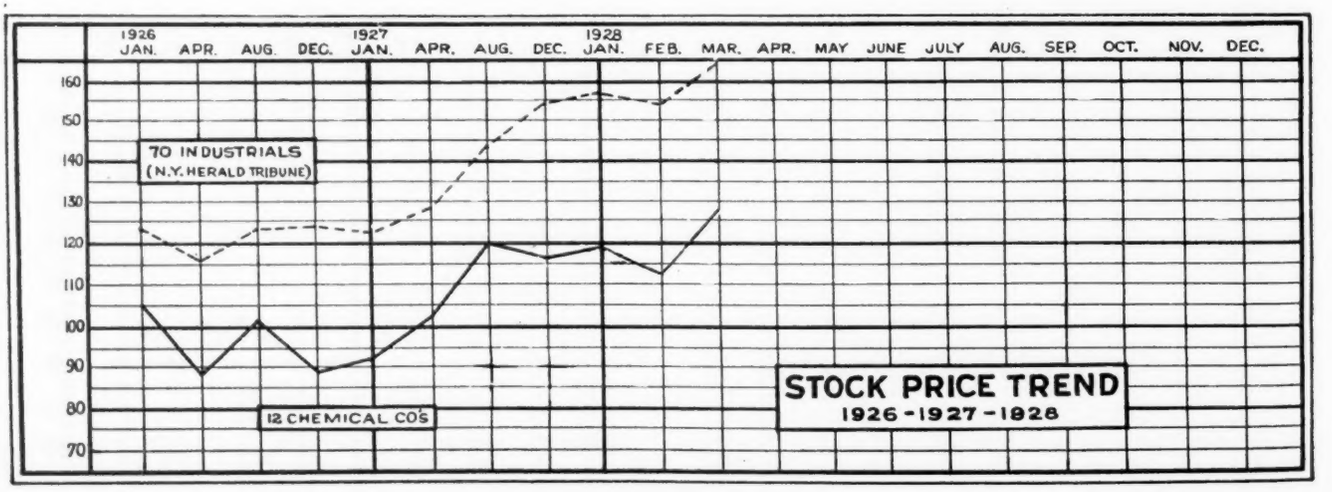
	1927	1926	1925
Net after Fed. tax	$34,195,681	$32,834,977	$28,267,088
Deprec. & deplet	6,440,221	6,003,037	5,692,188
Other charges	1,214,968	1,467,940	1,509,339
Int. charges	706,831	722,041	543,974
Pfd. divs. of subs	493,000	499,352	500,260
Net income	$25,340,661	$24,142,607	$20,021,327
Divs.	15,958,398	13,963,598	13,298,665
Surplus	$9,382,263	$10,179,009	$6,722,662

The consolidated balance sheet of Dec. 31, 1927, showed current assets of $63,179,874 compared with $62,925,553 Dec. 31, 1926, and current liabilities of $11,669,892 against $13,367,621, leaving net working capital of $51,509,982 against $49,557,932.

A CORRECTION

Due to a typographical error, there appeared on page 310 of the March issue of CHEMICAL MARKETS a note with the caption "National Ammonia Company in Bankruptcy". As correctly set forth in the body of the note, the concern in bankruptcy is the Niagara Ammonia Co., Inc., there being no question of the solvency of the National Ammonia Company.

Statement of Merck & Co., Inc., Rahway, N. J., as of December 31, 1927, shows total assets of $9,322,644 and surplus and undivided profits of $1,897,681. Current assets, after reserve for bad debts totaled $1,011,780 and current liabilities $583,797. Capital stock consists of 100,000 no par shares valued at $4,000,000.



American Solvents Earns $3.17 In 1927

American Solvents & Chemical Corp. and subsidiary companies report for the year ended Dec. 31, 1927, consolidated net income of $317,112 after expenses, interest, depreciation and Federal taxes, equivalent to $3.17 a share on the 100,000 no par convertible participating preference shares outstanding. Consolidated income account for the year follows: Operating profits, $1,315,833; expenses, etc., $696,041; net profits, $619,792; interest on funded debt, $138,770; depreciation, $106,869; Federal income taxes, $57,041; net income, $317,112.

Consolidated balance sheet as of Dec. 31, 1927, showed current assets of $1,999,604 and current liabilities of $590,804, leaving net working capital of $1,408,800.

Assets—Cash, $527,078; accounts and notes receivable, $665,334; merchandise inventories, $807,193; inventory of drums, less reserve, $136,142; sundry accounts and notes receivable, deposits with trustees, etc., $65,229; cash surrender value life insurance, $6,543; fixed assets, less depreciation, $2,409,642; patents and goodwill, $1,750,000; deferred charges, $65,647; total, $6,432,806.

Liabilities—Notes payable, $320,000; accounts payable, $152,415; accrued accounts including income taxes, $118,390; 6½% sinking fund gold debentures, $2,067,000; reserve for contingencies, $151,094; convertible participating preference stock, $3,000,000; common stock, $160,000; surplus $463,907; total, $6,432,806.

Johns-Manville Corp. Earnings

Johns-Manville Corp. reports for the year ended Dec. 31, 1927, consolidated net income of $4,108,159 after expenses and Federal taxes, equal after 7% cumulative preferred dividends to $4.78 a share on the 750,000 no par common shares outstanding. This compares with $3,778,373 or $4.34 a share on the same common share basis in the preceding year.

Consolidated income account for the year follows: Sales, $44,313,701; manufacturing costs, selling and administrative expense, $39,656,743; net profit, $4,656,958; Federal income tax accrual, $548,799; net income $4,108,159; preferred dividends, $525,000; common dividends, $2,250,000; surplus, $1,333,159.

British Celanese Co., Ltd., London, declares semi-annual dividend of 3¾ per cent. on 7½ per cent. preference stock, payable April 30. This is first declaration on issue since shares were issued in 1920. Arrears up to Feb. 28, 1923 were cancelled and company estimates net profits for year ended Feb. 29, 1928 at over £800,000.

E. I. du Pont de Nemours & Co. disposes of 114,000 shares of U. S. Steel common stock which it purchased last June for temporary employment of approximately $14,000,000 surplus funds. Stocks was sold on open market at about 20 points higher than when purchased.

Southern Phosphate Corp. reports for the year ended Dec. 31, 1927, net income of $7,919, after depreciation and depletion, equivalent to 3c a share on the 239,754 shares of no par capital stock outstanding. This compares with a net loss of $120,501 in the preceding year.

Corn Products Refining Co., New York, declares regular quarterly dividend of 50 cents on common and $1.75 on preferred, both payable to stock of record April 2, the first on April 20 and the latter on April 14.

Rio Tinto, Ltd., London, reports for year ended Dec. 31, 1927, net profit of £1,016,840, after all charges, compared with £1,191,045 in preceeding year.

U. S. Industrial Earnings Higher At $7.25; President Brown's Statement

U. S. Industrial Alcohol Co., New York, reports for year ended Dec. 31, 1927, consolidated net income of $2,244,526 after depreciation, Federal taxes, etc., equivalent after 7% cumulative preferred dividends and Cuba Distilling Co. preferred dividend, to $7.25 a share on the 240,000 shares (par $100) common stock outstanding. This compares with $2,238,229 or $7.04 a share on the common stock in the preceding year. The latter figures include $1,133,474 on profit realized from the sale of securities owned.

Consolidated balance as of Dec. 31, 1927, shows current assets of $11,299,465 as compared with $11,369,930 as of Dec. 31, 1926, and current liabilities of $1,706,378 against $1,316,780, leaving net working capital of $9,593,087 as compared with $10,053,150.

Russell R. Brown, president of company in his remarks to stockholders says:

"At the annual meeting of the stockholders to be held April 19, the stockholders will be asked to consider and take action on the following propositions which represent the unanimous recommendation of the board of directors:

"To change the common stock from stock having a par value of $100 per share to common stock having no par value; to authorize the increase in the number of shares of common stock from 240,000 to 400,000 shares; to provide for the issuance of 240,000 shares of common stock having no par value in exchange for the 240,000 shares of outstanding common stock at the rate of one share of such new common stock having no par value for each share of old common stock of the par value of $100 per share; and for the issuance from time to time of the remaining 160,000 shares of common stock having no par value for cash or property (including the preferred stock of the U. S. Industrial Alcohol Co. or of the Cuba Distilling Co.) on such terms as the board of directors may, from time to time, determine and to take all necessary steps pursuant to the laws of West Virginia to give effect to the foregoing."

Upon ratification of this capital readjustment, intangible assets, totaling $18,209,595, consisting of goodwill, $17,493,865 and patents, trademarks, formulae and processes, $715,730, will be reduced on the company's books to a nominal value of $1. A balance sheet has been prepared, giving effect to this reduction and the change to no par value of the common shares.

"In this balance sheet the 240,000 shares of common stock without par value stand at $8,400,000, which is the aggregate amount actually paid in cash for the common capital stock of the company. The surplus shown represents the actual net earnings accumulated during the years of the company's operations.

"The management has satisfied itself, through its own inspection, and that of advisors employed for that purpose, that the actual property values are in excess of those appearing on the balance sheet."

Devoe & Raynolds Co., Inc., declares an extra dividend of 40 cents on the common A and B and the regular quarterly dividends of 60 cents on the common A and B and $1.75 on first and second preferred stocks, all payable April 1 to stock of record March 21.

Freeport-Texas Co. declares an extra dividend of 75c. a share and the regular quarterly dividend of $1 a share. Same extra was paid in the previous quarter. Both dividends are payable May 1 to holders of record April 14.

Columbian Carbon Co. and subsidiaries report for the year ended Dec. 31, 1927, net income of $2,320,962 after charges and Federal taxes, equal to $5.05 a share on the 402,031 no par capital shares outstanding. This compares with $2,618,632 or $6.51 a share in 1926.

Carbide Directors Approve Plan Of Larger Executive Stock Participation

Directors of Union Carbide & Carbon Corp., New York, approve plans to become effective May 1, 1928, under which those who hold managerial and executive positions in the corporation or its subsidiaries, may be assisted in acquiring larger financial interests in the corporation.

It is provided that amounts which may aggregate a maximum of 5% of the earnings available for dividends of the previous year, are to be annually used for the purchase of stock, a portion of these funds to be in the custody of the treasurer, and a portion in the custody of three trustees named by the executive committee of the board of directors.

It is also provided that the corporation is to advance to the three trustees $5,000,000 to be used in the purchase of stock of the corporation. This amount with interest at the rate of 4% per annum is to be returned to the corporation in four years.

The stock thus acquired will be used under the supervision of the executive committee of the board of directors to carry out the purposes of the plans.

American Linseed Co. and subsidiaries report for the year ended December 31, 1927, net income, including $176,901 profit on sale of investment, and interest on refund of Federal taxes, of $2,135,380 after depreciation, interest and Federal taxes, equivalent after allowing for dividend requirements on 7% preferred stock, to $5.75 a share earned on 167,000 shares of common stock. This compares with $103,871 which included $27,806 profit from sale of investment, equal to 62 cents a share on 167,500 shares of 7% preferred stock in 1926.

Canadian Salt Co. declares regular two per cent. quarterly dividend, payable April 2 to holders of record March 24.

Air Reduction Splits Stock 3 For 1

Air Reduction Co., Inc., New York, splits capital stock three for one, increases authorized shares from 293,334 to 1,000,000, all without par value, and authorizes issuance of 676,203⅓ shares no par in exchange for 225,401⅓ shares outstanding. New listing of 676,203⅓ shares is admitted to New York Stock Exchange and company declares initial quarterly dividend of 50 cents a share on new stock. Dividend is payable April 15 to holders of record March 31 and places new stock on $2 annual basis, whereas old stock was on $6 basis.

Canada Gypsum and Alabastine, Ltd., Paris, Ont., plans purchase of business and properties of Manitoba Gypsum Co., Ltd., and its subsidiary, British Columbia Gypsum Co., Ltd. In addition to a contemplated issue of securities in connection with this extension, shareholders will be given an opportunity to subscribe for additional shares, at rate of two for each five shares held at close of business March 13. Upon issue of additional shares company's capital will consist of 76,000 shares of no par common stock.

Nova Scotia Wood Fibres, Ltd., is incorporated under Nova Scotia charter, with capital of $15,000,000, divided into 2,500,000 preference shares of $5 each and 10,000,000 common shares of 25 cents each, to manufacture rayon silk from wool fibre. Provisional directors are Russell McInnes, solicitor, Halifax, and two stenographers. Promoters are unknown.

American Woolen Co. reports net profit for 1927 of $2,598,077 before depreciation, which compares with a deficit of $2,103,153 before depreciation in 1926.

Organic Chemical Co., Syracuse, increases capital to 6,000 shares preferred, $100 each, and 25,000 shares no par common.

The Industry's Bonds

1928 Mar. 31st High	1928 Mar. 31st Low	1928 High	1928 Low	1927 High	1927 Low	Sales In March	Sales Since Jan. 1928	ISSUE	Date Due	Int. %	Int. Period	Orig. (1) Offering $
								NEW YORK STOCK EXCHANGE				
105¼	105¼	106	104⅞	105	99	242	803	Am. Agri Chem	1941	7½	F. A.	30,000
102¼	102	102⅜	101	103½	100½	351	707	Am. Smelt & Refin "A" 5%	1947	5	A. O.	...
108	108	109½	107½	108⅛	107½	87	301	Am. Smelt & Refin "B" 6%	1947	6	A. O.	...
105⅛	105¼	106¼	105⅛	105⅛	103⅜	860	2,818	Anaconda Copper Mng	1953	6	F. A.	100,000
117¼	115⅞	105½	105⅛	116⅛	106⅛	1,181	2,923	Anaconda Copper Mng 7%	1938	7	F. A.	50,000
101⅛	101⅛	103⅛	96⅛	97	87	268	1,731	Anglo Chilean	1945	7	M. N.	16,500
101⅛	101⅛	103⅜	100⅛	103⅛	100⅛	67	311	Atlantic Refin	1937	5	J. J.	15,000
103	103	103⅛	102	102⅛	100⅛	33	76	By product Coke	1945	5½	M. N.	8,000
102⅛	102⅛	102⅛	102⅛	104⅛	101⅛	11	16	Corn Product Refin	1934	5	M. N.	10,000
111	110⅛	117	109	111⅛	106	156	535	General Asphalt	1939	6	A. O.	5,000
91⅛	91⅛	92	90	91⅛	81⅛	15	59	Int. Agric. Corp	1932	5	M. N.	30,000
81⅛	81⅛	81⅛	79	...	...	41	76	Int. Agri. Corp. stamped, extended	1942	5	M. N.	7,020
132⅛	129⅛	133	113	133⅛	104	564	1,749	Lig. Carbonic Corp	1941	6	F. A.	5,000
107	107	107⅛	100⅛	102	98⅛	588	1,754	Montecatini	1937	7		
97⅛	97⅛	101⅛	94⅛	95⅛	92⅛	168	290	Ex War	1937	7		
115⅛	115⅛	115⅛	113⅛	115	113⅛	10	26	People's Gas & Coke	1943	6	A. O.	10,000
106⅛	106⅛	106⅛	105	105⅛	101⅛	22	643	Refunding	1947	5	M. S.	40,000
103⅛	103⅛	104	103	104⅛	101⅛	259	1,062	Standard Oil N. J.	1946	5	F. A.	120,000
104	103⅛	104	101⅛	101⅛	98⅛	22	125	Tenn. Cop. and Chem	1941	6	A. O.	3,000
91⅛	90	91⅛	90	95⅛	91	4	16	Va. Iron C. & C				
High	Low							NEW YORK CURB				
101⅛	101	102	97⅛	99⅛	95⅛	119	127	Agri. Mtge. Bk. of Col 46	1946	7	J.O.	...
100⅛	100⅛	101	97	99⅛	96	215	221	Agri. Mtge. Bk. of Col	1947	7	J.J. 15	3,000
103⅛	103	103⅛	101⅛	105⅛	105	524	1,328	Alum. Co. of Am 52	1952	5		
96⅛	96⅛	96⅛	94⅛	101⅛	99	254	562	American Cyan	1942	5	A. O.	5,000
101⅛	101⅛	101⅛	101⅛	102⅛	101⅛	109	366	Anaconda Cop	1929	6	J. J.	25,000
101⅛	100⅛	101⅛	99⅛	99⅛	95⅛	244	1,017	Koppers Gas and Coke	1947	5	J. D.	25,000
102⅛	102⅛	103⅛	102	103	98	6	39	Natl. Dist. Prod	1935	6½	J. D. 15	3,500
98⅛	98⅛	98⅛	96⅛	98	95⅛	377	2,003	Shawinigan W & P	1967	4½		
...	...	19⅛	17	100⅛	100	2	18	Silica Gel	1952	6½		
100	100	100	98⅛	99⅛	96	61	167	Solvay Am. Invest. Corp	1942	5	M. S.	15,000
101	101	101⅛	100⅛	100⅛	99	231	771	Swift & Co	1932	5	A. O.	50,000
96⅛	96	97	93⅛	99	90	108	108	U. S. Ind. Alc	1941	6½	M. N.	...
103⅛	103	104	102	103⅛	98⅛	77	197	Westavco Chlorine Prod	1937	5½	M. S.	2,500
								BOSTON				
102⅛	102⅛	103	101⅛	102⅛	101	36	62	Swift and Co	1944	5	J. J.	50,000
								CHICAGO				
102⅛	102⅛	103	102⅛	103⅛	101⅛	2	34	Swift and Co	1944	5	J. J.	50,000
--.	...	...	...	101⅛	99	...	88	Westvaco Chlorine Prod	1937	5½	M. S.	2,000

(a) $500.

Vanadium 1927 Income at $1,849,240

Vanadium Corp. of America and subsidiaries report for the year ended Dec. 31, 1927 consolidated net income of $1,849,240 after depreciation, depletion and Federal taxes equivalent to $4.91 a share on the 376,637 no par capital shares outstanding. This compares with $1,980,031 or $5.26 a share in 1926.

The balance sheet as of Dec. 31, 1927 showed current assets of $6,853,675 compared with $6,250,828 Dec. 31, 1926; current liabilities of $407,429 against $448,930 leaving net working capital of $6,446,246 as against $5,801,898.

Industrial Rayon Corp. reports for the year ended Dec. 31, 1927, consolidated net income of $907,768 after depreciation, interest and estimated Federal income taxes equivalent to $1.94 a share on the combined 465,479 no par class "A" and 2,000 class "B" shares outstanding.

Consolidated net income for the six months ended Dec. 31 was $638,498, or $1.37 a share, as against $269,270, or 56c a share, on the combined shares in the preceding six months.

Wood Chemical Products Co., Cleveland, declares quarterly dividend of 50 cents on common stock, payable April 2 to stock of record March 20.

Allied Chemical & Dye Corp. declares regular quarterly dividend of $1.50, payable May 1 to stock of record April 3.

Archer-Daniels Six Months' Earnings Up

Archer-Daniels-Midland Co. for six months ended February 29, 1928, reports net profit of $827,317 after depreciation federal taxes, etc., equivalent after dividend requirements on 7% preferred stock to $3.38 a share earned on 200,000 no-par shares of common stock. This compares with $668,960 or $2.59 a share on common in same period of previous year.

For quarter ended February 29, net profit was $437,845 after above charges, equal to $1.18 a share on common, comparing with $389,472 or $1.57 a share on common in preceding quarter and $321,333 or $1.23 a share on common in corresponding quarter of previous year.

Archer-Daniels-Midland Co. declared regular quarterly dividends of 75 cents on common and $1.75 on preferred, both payable May 1 to stock of record April 20.

Earnings of the General Electric Co., Schenectady, for 1927 amounted to $48,799,488, equivalent, after dividends on the special stock, to $6.41 a share on the 7,211,481 shares of no par common stock. This compares with $46,672,498, or $6.14 a share, in 1926.

U. S. Industrial Alcohol Co. declares regular quarterly dividend of $1.25 on common and $1.75 on preferred, the first payable May 1 to holders of record April 16, and latter payable April 16 to holders of record April 2.

The Industry's Stocks

1928 Mar. 31st Bid	Asked	1928 High	Low	1927 High	Low	Sales In Mar.	Since Jan. 1, '28	ISSUES	Par $	Shares Listed	An. Rate	Earnings $-per share-$ 1927	1926
62¼	63	65¼	61	199½	134½	18,180	66,880	Air Reduction	No	223,445	$5.00	9 mo. 12.63	10.83
162½	163½	164¼	146	169½	131	153,300	440,600	Allied Chem. & Dye	No	2,178,109	6.00	10.02	9.79
122½	123½	125½	122	124	120	2,900	5,060	7% pfd	100	392,849	6.00		61.28
18½	18½	21¼	15⅝	21½	8½	26,400	86,520	Am. Agricultural Chem	100	333,221	2.00	Nil	...
66½	67	71¼	55½	72½	28½	44,200	115,020	pfd	100	284,552	1.50		3.59
85⅝	85¾	88¼	70½	77⅝	43¾	1,204,040	2,790,960	American Can	25	2,473,918	2.00	4.11	4.38
145½	156½	146	136½	141½	126	5,900	10,960	pfd	100	412,333	7.00	31.66	33.31
95	97	111¾	56⅜	72½	20½	672,300	1,072,920	American Linseed	100	167,500	...		...
98¾	99½	101	86½	92½	46¾	19,880	40,360	pfd	100	167,500	7.00	7 mo. 6.00	.62
43¾	44	46½	39	49⅜	36½	37,800	83,520	American Metal Ltd	No	594,278	4.00	9 mo. 3.64	3.88
122	123	125	110½	113½	108	10,710	18,886	pfd	100	50,000	7.00	9 mo. 50.27	53.15
188½	189	192½	169	188¼	132½	475,800	840,420	Amer. Smelt and Refin	100	609,980	7.50	6 mo. 19.64	23.38
140½	141	140½	131⅛	133	119½	7,400	13,680	pfd	100	500,000	7.00	6 mo. 17.01	35.52
21	21½	23	6⅜	10½	5½	130,300	292,300	Amer. Zinc & Lead	25	193,120	...	9 mo. Nil	...
82½	83½	86	40	51½	35	194,700	331,240	pfd	25	96,560	...	9 mo. 2 31	...
61½	61½	63½	53½	60½	41½	445,800	888,020	Anaconda Copper Mining	50	3,000,000	3.00		4.74
64½	65	66½	55½	63	38	33,000	49,780	Archer Dan. Mid	No	200,000	...	5.76	6.35
114	115	115½	112¼	112½	106	310	960	pfd	100	43,000	7.00	37.31	35.23
80	83	101	63	70	56½	15,400	22,300	Atlas Powder Co	No	260,393	4.00	5.75	7.04
106½	108	109	102½	107	98	740	1,528	pfd	100	90,000	6.00	6 mo. 22.71	26.46
116	116½	117	95½	131⅜	104	57,600	171,480	Atlantic Refining	100	500,000	...	9 mo. Nil	11.24
5½	6	7½	4½	5½	3½	28,000	108,620	Butte Copper & Zinc	5	600,000	.50	9 mo. 0.09	.32
10	10½	12½	9	11½	7½	9,200	43,060	Butte Superior Mng	10	290,197	2.00	9 mo. 0.23	1.71
72	72½	74½	65	92½	66	9,900	22,020	By Prod. Coke	No	189,931	3.00	9 mo. 4.84	6.00
2¼	2½	2½	1½	2⅜	1½	17,900	77,960	Calla Lead & Zinc	10	723,355	...	9 mo. 0.08	...
21⅜	21½	23½	20½	24½	14½	59,100	272,420	Calumet & Hecla	25	2,005,502	1.50	9 mo. 0.29	.75
56	56½	61½	54½	55½	42	37,200	265,520	Certainteed Prod	No	307,000	4.00	9 mo. 6.07	6.02
120	...	120½	119	118½	106	200	2,400	1st pfd	100	43,000	7.00	9 mo. 56.80	54.30
40½	41	42½	37½	44⅛	33½	99,000	301,430	Chile Copper	25	4,435,595	2.50	6 mo. 0.62	2.65
88½	90	98½	87	101½	66½	13,400	45,140	Columb Carbon	No	204,131	4.00	9.41	6.51
177	183	189½	153½	203	145	153,300	217,600	Commercial Solvents	No	108,861	4.00	9 mo. 9.24	14.13
105½	106	110	80½	86⅞	58⅜	401,600	600,560	Cont. Can	No	620,000	6.00	7 mo. 7.54	6.36
127	128	128	123	126	120	590	1,070	pfd	100	52,930	7.00	7 mo. 86.82	70.55
78⅜	78½	79⅜	64⅜	68	46⅜	377,500	781,600	Corn Products	25	2,530,000	2.00	9 mo. 4.01	4.03
146½	149	146½	138½	142½	128	1,600	3,000	pfd	100	250,000	7.00	9 mo. 47.62	47.73
40	41	46⅜	34⅜	48½	26½	60,700	245,160	Davison Chem	No	310,000	...		...
48	49	52⅜	40	42½	36½	26,900	182,600	Devoe & Rayn A	No	95,000	2.40	(†) 5.47	5.22
112½	113	115½	108	114½	101	180	490	1st pfd	100	18,096	7.00	6 mo. 53.23	49.70
120½	122	120⅜	115	118	105½	5,600	9,140	Dupont deb	100	795,212	6.00	9 mo. 57.04	52.51
381	382	395	310	343⅞	168	147,300	252,260	Dupont de Nemours	No	2,661,658	9.50	15.45	13.98
169½	171	173½	163	175½	126½	41,300	85,540	Eastman Kodak	No	2,055,340	5.00		9.50
126	129	134	125	131½	119½	180	412	pfd	100	61,657	6.00		322.11
130	139	140	140	97	75½	200	500	Fed. Mining & Smelting	100	50,400	...	23.36	35.95
71½	71¾	74½	66	71½	46½	213,700	781,920	Fleischmann	No	4,500,000	3.00	4.30	4.08
82⅜	83	109¼	65⅜	106½	34	486,700	1,595,920	Freeport Texas	No	729,733	4.00	9 mo. 5.24	2.48
88½	89	93¼	71½	96½	65	243,400	833,900	General Asphalt	100	243,550	...	6 mo. 5.00	8.11
130	135	140½	114	144½	107½	7,200	15,300	pfd	100	68,742	5.00	6 mo. 4.20	27.58
23½	23½	24½	20⅜	22	14½	64,900	290,580	Glidden	No	400,000	2.00	3.03	3.41
99½	99⅜	99½	95	101	86	1,370	6,996	pfd	100	71,922	7.00	6 mo. 23.91	25.98
96	96½	105⅜	71	78½	42	440,800	1,538,820	Gold Dust	No	318,586	...	6.20	3.01
64½	65	69½	64½	70⅜	43½	11,400	36,940	Household Prod	No	575,000	3.50	6 mo. 5.22	5.22
14	15½	19⅜	13	16⅜	6½	33,800	53,200	Intern. Agri	No	441,695	...	Nil	1.60
51	60	63½	48	65	33	12,400	18,800	pfd	100	100,000	...	Nil	14.06
94½	94½	99½	73⅜	89½	38½	2,241,200	4,818,100	Intern. Nickel	25	1,673,374	2.00	9 mo. 2.26	3.00
112	123	99½	...	110	103⅜	...	3,400	pfd	100	89,126	6.00	9 mo. 46.94	62.35
50	51½	69	49½	75	63	980	1,358	Intern. Salt	100	60,771	6.00	6 mo. 2.64	8.35
117	116⅜	125	111½			17,700	157,160	Johns-Mansville	No	750,000		4.69	4.34
74½	75½	77½	63½	78⅜	45	118,400	244,800	Liquid Carbonic Corp	No	125,000	3.60	5.90	11.34
49½	49⅜	51½	46	58½	43	3,700	10,440	Mac and Forbes	No	376,748	2.00	9 mo. 2.36	3.30
126	127	133	118½	132⅜	82	48,500	106,660	Matheison Alk	No	147,207	6.00	9 mo. 11.27	9.88
120	...	121	115	120	103	170	450	pfd	100	24,750	7.00	9 mo. 74.06	67.85
19	19½	19½	17⅛	20⅜	13	21,600	83,000	Miami Copper	5	747,114	1.50		1.52

1928 Mar. 31st Bid	1928 Asked	1928 High	1928 Low	1927 High	1927 Low	Sales In Mar.	Sales Since Jan. 1, '28	ISSUES	Par $	Shares Listed	An. Rate	Earnings $-per share-$ 1927	Earnings $-per share-$ 1926
44½	45	58½	35½	56½	17	54,800	280,740	National Dist. Prod.	No	167,651	...	9 mo. 0.54	...
57½	60	71½	55	69½	43	2,000	15,960	pfd.	No	109,795	...	9 mo. 1.62	...
131½	135	136	123	202½	95	17,400	35,680	National Lead	100	206,554	8.00	10.25	35.33
147	148	147	139	139½	131½	2,900	4,520	pfd A	100	243,676	7.00		
120	122	121½	112½	116½	104½	2,600	3,480	pfd B	100	103,277	6.00		
31	31½	31½	22½	27½	19½	86,600	206,800	Penick & Ford	No	433,773	...	9 mo. 2.04	1.37
170	172½	189½	157	168½	126	25,400	136,980	Peoples Gas Chi.	100	60,000	8.00	11.15	11.04
39	40½	43½	37	43½	36	20,900	58,020	St. Joseph Lead	10	1,951,517	2.50	1.85	4.21
41½	41½	41½	37½	41½	35½	247,100	586,520	Standard Oil Co of N. J.	25	24,262,532	1.00		5.01
30½	30½	31½	28½	34½	29½	113,200	469,380	Standard Oi lCo. of N. Y.	25	17,023,928	1.60	0.90	1.9 4
11½	11½	11½	10½	13½	8½	25,400	53,600	Tenn. Cop. & Chem.	No	794,624	1.00		1.31
75½	76	80½	68½	81½	49	836,300	2,082,240	Texas Gulf Sulfur	No	2,540,000	4.00	4.76	3.69
153	154	155½	136½	154½	98½	404,900	666,000	Union Carbide	No	2,827,470	6.00	9 mo. 6.64	9.07
8	9	11	5	10	3½	30	60	United Dyewood	100	139,183	7.00	9 mo. Nil	...
61	64½	67½	45½	49	36½	810	1,120	pfd	100	39,500	...	6 mo. 2.72	3.88
116	117	122½	102½	111½	69	192,100	472,380	U. S. Ind. Alc	100	240,000	5.00	6.00	7.04
122	124	121	119	121	107½	500	1,070	pfd	100	60,000	7.00		35.16
49½	49½	51½	44½	48½	26½	15,490	45,390	Va. Car. Chem Com. 6% pfd	100	213,350	...		6.73
96½	98½	96½	88½	91	73	3,900	12,590	7% pfd	100	142,910	7.00		17.54
								NEW YORK CURB					
30	29½	31½	29½	31½	30	8,500	34,520	Acetol Prod.	No	60,000			
125½	125½	136	120	145½	67½	7,350	33,570	Aluminum Co. of America	No	1,427,625	...	4.02	...
39½	38½	50	38½	43½	25	20,500	104,540	"B"	20	263,772	1.20	3.09	3.49
13½	13½	17½	13	18½	3½	10,500	42,240	Amer. Rayon Prod.	No	110,000	1.00		Nil
31½	30½	32½	25½	29	11	44,700	62,440	Amer. Solvents & Chem. pfd.	No	160,000	...		Nil
28½	28½	31½	26½	31½	14	4,200	24,400	Anglo Chile Nitrate	No	1,756,750	...	Loss	Loss
43	42½	43½	36½	43½	22	3,600	5,880	Canad. Ind. Alc.	No	800,000	1.28	2.49	2.63
87	90	100½	70½	117	44	49,400	111,920	Celanese Corp of Am	No	1,000,000	...	1.91	1.80
114½	114½	122	100	129½	60	4,700	14,900	Celluloid Co.	100	70,980	...		...
128	128	132	125	133½	113½	910	4,490	1st pfd	100	24,551	...		...
86½	86	87½	80	91	84	950	2,730	Celotex pfd.	No	164,730	3.00		5.06
136	134½	140	123	126	76½	400	6,320	Chesebro Mfg Co.	25	120,000	4.00		8.06
43	43	45	36	38½	24½	4,840	18,720	Courtaulds	£1	£12,000,000	16½%		18.18
218½	218½	237	192	202	180	730	848	Hercules Powder	100	147,000	16.37	9 mo. 16.37	18.18
122	119½	122	118½	121	114	120	198	pfd.	100	111,392	7.00	28.04	30.82
8½	8½	9	7½	10	7½	2,500	3,880	Heyden Chem.	10	150,000	...		0.32
18½	18	22½	17½	24½	4½	45,000	162,180	Indus. Rayon 'A"	No	452,544	...		2.27
...	...	...	...	39	37½	3,000	5,960	Monsanto Chem.	No	110,000	8.09	9 mo. 6.11	5.60
198	196	199½	180½	194½	178	1,705	4,853	N. J. Zinc	100	490,816	8.00	14.34	14.34
90½	89½	95¼	85½	112	60½	9,500	18,040	Palmolive Peet	No	1,500,000	...	5.04	2.86
...	...	...	...	105½	84	300	1,130	Penn Salt	50	150,000	5.00	8.09	6.08
8	8	9½	6½	14½	8	3,400	5,780	Pyrene Mfg.	10	223,158	2%	6.42	2.38
239½	225	287	225	335	160	150	1,300	Royal Baking Powder					
109½	109	109½	104	110	100	150	500	pfd					
...	...	...	...	68½	44	650	1,000	Sherwin William	25	594,445	3.00	6.42	5.59
19½	19	19½	17	20½	13½	6,400	20,720	Silica Gel	No	600,000	...		...
78½	77½	80½	70½	81½	64½	105,700	360,920	Standard Oil Co. of Indiana	25	9,136,618	...		6.03
8½	8½	9	8½	12	5	1,400	2,800	Snia Viscosa	150 lire	6,666,666⅔	.72		6.86
16½	16½	17¼	16	21	13½	350	1,490	Swan & Finch	25	34,458	.87½		...
127½	127½	133	125	130	115½	11,350	22,230	Swift & Co.	100	1,500,000	8.00	8.13	10.43
627	616	627	450	499	145	54,730	62,698	Tubize "B"	No	78,868	...		...
71½	71½	92	70	110½	82½	2,900	9,615	U. S. Gypsum	20	687,875	8%	10.10	11.35
71½	71½	73	67	77	50½	7,200	28,700	Wesson Oil and Snow	No	300,000	4.00	5.26	8.71
								CLEVELAND					
...	...	120	104	115	74½	833	1,967	Cleve-Cliff Iron	No	400,000	4.00		
140	140	140	112½	108	70	31	570	Dow Chem.	No	100,000	4.00		...
...	...	107	105	106½	100	213	355	pfd.	100	30,000	7.00		...
...	...	...	...	21½	15½	...	120	Glidden	No	400,000	2.00	3.03	3.41
99	99	100	96	100	84	50	993	pfd.	100	71,922	7.00	6 mo. 23.91	25.98
136½	136	136½	129½	135	127	353	1,657	Grasselli	100	215,704	...	11.27	10.24
111	109	111	105½	109½	102½	266	2,197	pfd.	100	123,742	6.00		23.68
...	...	20½	18½	24½	4½	114	934	Indus. Rayon "A"	No	452,544	...		2.27
66½	66	69	65½	70	44	679	2,143	Sherwin William	25	594,445	3.00	6.42	5.59
109½	109	109½	107	109	104	353	1,377	pfd	100	125,000	6.00		...
25½	25½	26½	25	...	...	3,791	...	Wood Chemical Prod. "A"	No	20,000	2.00		...
								PITTSBURGH					
...	...	...	...	33½	18	...	991	Am. Vitrified Prod.	50	70,000	7.50	2.95	2.19
								CHICAGO					
60	...	69	49	86	53	2,345	8,128	Celotex	No	170,456	3.00	3.31	
82	...	88	80	92	82	432	1,584	pfd	100	52,534	7.00		
53	52	55	38½	39	37	9,980	28,947	Monsanto Chem.	No	110,000	...	9 mo. 6.11	5.60
128½	128½	132½	124½	130	115½	10,540	16,412	Swift & Co.	100	1,500,000	8.00	8.13	10.43
...	...	143½	139½	152½	99	200	375	Union Carbide	No	2,827,470	6.00	9 mo. 6.64	9.07
77	74½	93	69	110½	82	23,295	55,952	U. S. Gypsum	20	687,875	8%	10.10	11.35
								CINCINNATI					
127	125	127	125	125½	113½	2	116	Fleishmann pfd.	100	12,295	6.00	1,589.49	1,501.80
273	270	270	249	250	177	2,871	9,103	Proc. & Gam.	20	1,250,000	4.75		9.17
								BOSTON					
22	21½	23½	20½	17½	14½	10,725	49,394	Calumet & Hecla	25	2,005,502	1.50	9 mo. 0.29	.75
128	128	133	124½	130½	115	1,539	5,887	Swift & Co.	100	1,500,000	8.00	8.13	10.43
								ST. LOUIS					
...	...	121	118½	...	...	24	329	Certainteed Prod. pfd.	100			56.80	
...	...	...	...	36	36	...	931	South Acid and Sulfur Co.	No	52,000	3.00		...
								PHILADELPHIA					
96	96	109½	92	105½	74½	1,224	4,426	Penn. Salt	50	150,000	5.00	8.09	6.08
125½	124½	125½	111½	118½	89½	200,950	349,023	United Gas Imp.	50	2,130,088	...		4.59
								MONTREAL					
33½	31	...	...	39½	20	...	....	Asbestos Corp.	No	200,000	1.50		1.02
92½	92½	...	...	98	82½	...	....	pfd.	100	74,561	7.00		
43	42½	...	...	43½	21½	...	....	Canada. Ind. Alc.	No	(d)800,000	1.28	2.49	2.63
86	85	...	...	*277½	67	...	....	Shawinigan W. & P.	No	1,100,000	2.00	2.63	
...	...	...	...	207	142	...	....	Sherwin William of Can.	100	40,000	6.00	8.84	9.54
...	...	...	...	127	117	...	....	pfd	100	34,350	7.00		
								BALTIMORE					
125	125	...	...	39½	37	...	....	Davison Chem.	No	310,000	...		...
19	19	19½	17	20½	15	853	6,976	Silica Gel	No	600,000	...		...
Bid	**Asked**							**UNLISTED**					
74	78	...	...	...	...	...	....	Casein Co.	100	21,196	7.00		7.10
138	143	...	...	89	55	...	....	Merck & Co pfd.	100	33,950	4.00		7.60
...	...	...	...	...	...	...	....	Merrimac	50	70,560	...		...
...	...	...	...	...	...	...	....	Newport Chem.	1	912,198	4%		

*Old stock. † Combined A & B. (b) June 18 to Dec. 30. (d) 1927 earnings on 969,480. (e) Bid & Asked. (f) Thru Jan. 28 (g) High low.

The Trend of Prices

Barium Carbonate Duty Advance Features Otherwise Quiet Market

Importers Advance Price Immediately to the Amount of Duty—Market Generally Quiet—Mercury Higher—Dynamite Glycerin Nominal—Citric and Tartaric Acids Firm and Higher—Oils and Fats Quiet.

Of outstanding interest on an otherwise quiet market during the month of March and early April, has been the advance of ½c per pound on the import duty of barium carbonate. The bill was signed during the last week in March by President Coolidge and becomes effective on all imports on and after that date. The price of the imported material has since been advanced $10.00 a ton by the importers to take care of the increase in duty and is now held at $57.50 a ton. As the price was advanced almost immediately following the proclamation there was not any noticeable increase in consuming inquiry, which is sometimes the case when the consumers all endeavor to cover at the old figure before the advance.

The consensus of opinions among the manufacturers and distributors seems to be that business has shown a falling off since the early part of March. No particular concern is felt because of this state of affairs as in most instance where complaints are heard a very good volume of contract business was consummated during the contract season. This cry of poor business is by no means universal, for a sales executive of one of the largest chemical manufacturing concerns, returning from a trip throughout the South and Mississippi valley territory, is enthusiastic over the expressions of confidence of good business encountered in these sections by sales agents and customers alike. Others report a normal business for this period of the year with sales on about the same scale as last year. But the impression is gathered that conditions are not as bright as was anticipated just after the turn of the year.

Alcohol Merger Talked Of

Rumors have been current for the past two weeks of a merger between three or four of the small alcohol distillers, together with one or possibly two companies closely allied to the alcohol industry. The merger is said not to include any of the operators in the Metropolitan area, but is being engineered by a producer in the Chicago district and embraces as well one distiller in the New Orleans and one on the Atlantic seaboard.

There has been an unexpected upward turn in the mercury market since last month. This was caused by advances in both the Spanish and Italian primary markets, brought on by an effort to hold the market from easing off. This market was effected to the extent of an advance of $3 per flask, but acted as a boomerang on the sale, for buying has been very limited since the advance. What little interest there is has been confined to very small lots.

The fall in the price of dynamite glycerin has been checked for the first time in many months. While there are parcels available at the figure prevailing early in March, some sellers have advanced their ideas. Consuming interest has not picked up and from this angle the market is practically at a standstill. However, there seems to be a feeling in the trade that the market is in a better position than at this time last month. Chemically pure glycerin has shown a decline of 1½c lb. during the period under report, but is considered in a better statistical position than dynamite, and for this reason more attention is being paid to this grade by the sellers. Lye and saponification grades are unchanged.

The unusual demand for ammonium persulfate has continued throughout the month, and though the price has not advanced again following its initial sharp increase, sellers are still enjoying a very good inquiry from the fur dyeing trade.

Chlorate of soda is still feeling the effects of imported competition and domestic manufacturers have not again changed the price since the reduction of last month. Oxalic acid is in the same firm position which has prevailed for months past and a good business is passing at the openly quoted levels.

Good Calcium Chloride Sale

Manufacturers of calcium chloride are looking ahead to a good year, and based on the type of inquiry which has been received from various state governments for use on roads during the approaching Summer season, sales during this year should be somewhat ahead of 1927. Some of this business has already been consummated but quite a volume is dependent on weather conditions. Since the reduction in price to meet the competition of the new producer in the field, there has not been any occasion to make a further change in either direction. Ammonium chloride has receded into the background as an item of interest during the month, as the sharp reductions earlier in the year served to entrench domestic sellers practically in control of the market. Imported competition is negligible. Also, consuming interest has fallen off to some extent. This was expected, as the loss of business sustained by the battery trade in the radio business, has had its effects on the raw materials which enter into the manufacture of batteries. Zinc ammonium chloride has been the subject of price cutting in some sections, notably Philadelphia, with domestic manufacturers apparently determined that importers shall not get business if preventable. In some instances the market has been shaded from ¼c to ⅜c lb.

Copper sulfate is not so actively strong as was the case during the first week in March as buying has fallen off a bit during the period. There is no reason to believe that the market will not continue strong throughout the season as their has not been any change in the basis position of the market. With a large bulk of the export business accounted for a falling off was anticipated. Imported competition continues out of the question and sellers are still restricting forward orders to sixty days.

Anhydrous and aqua ammonia and liquid chlorine are all unchanged with anhydrous ammonia still showing the firmness apparent since the first of the year. Bleaching powder is unchanged and rather routine.

There has been considerable strength displayed during the month in both citric and tartaric acids. With a scarcity in raw materials and a consequent advance in their price, this trend has been reflected in the manufactured products, particularly citric acid which has advanced twice during the month.

The major oils in the oil and fat group have not shown any noteworthy activity during the month. Olive and linseed oils have not moved in either direction, Chinawood oil is fractionally lower, believed to be the result of speculation. There has, however, been a sharp upward movement in stearine oleo based on a very healthy consuming demand. This advance has totaled almost 2½c per pound during the four weeks. Other items in the fatty oil group have not shown any change.

Ammonium sulfate continues to hold the center of the stage in the fertilizer group with a total increase in price of 40c per 100 pounds for the month. Stocks are still very scarce and on a strong demand the trend of the market is expected to continue upward. The movement of nitrate of soda is confined to rather narrow limits but the price has advanced 2½c 100 pounds in expectation of a good seasonal demand. Tankage has eased off a bit on a falling off in demand and blood on the New York market is unchanged for the month.

Prices Current

Heavy Chemicals, Coaltar Products, Dye-and-Tanstuffs, Colors and Pigments, Fillers and Sizes, Fertilizer and Insecticide Materials, Naval Stores, Fatty Oils, etc.

Chemical prices quoted are of American manufacturers for spot New York, immediate shipment, unless otherwise specified. Products sold f. o. b. works are specified as such. Imported chemicals are so designated. Resale stocks when a market factor are quoted in addition to makers' prices and indicated "second hands."

Oils are quoted spot New York, ex-dock. Quotations f.o.b. mills, or for spot goods at the Pacific Coast are so designated.

Raw materials are quoted New York, f. o. b., or ex-dock. Materials sold f. o. b. works or delivered are so designated.

The current range is not "bid and asked," but are prices from different sellers, based on varying grades or quantities or both. Containers named are the original packages most commonly used.

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Mar. 1928 67.8c

Acetone — The local market is holding up quite well, though there is not an unusual interest at this writing. C.P. is named at 13c lb. in drums at New York.

Acid Acetic — Producers report that the market is well maintained, though consuming interest has fallen off during the past few weeks. There has not been any change from the openly quoted prices of $3.38 100 lbs. for 28° material in carlots at the works and $11.92 100 lbs. for carlots of glacial.

Acid Citric — Has continued its very firm movement over the past month. On April 3 domestic manufacturers advanced the price to 46c lb. for barrels and 46½c lb. for kegs. This was preceded by an advance late in March by the importers to 59c lb. The domestic price is therefore still well under imported. An unexpected shortage in the lemon crop both in Italy and California is advanced as the cause of the unusual firmness in the market. Domestic sellers are having no trouble in getting the openly quoted price when buyers are actually in the market.

Acid Cresylic — Importers have advanced the price on dark acid since last month and are now holding the market firm at 71c @ 73c gal. in all directions. Pale has not changed during the month but is likewise very firm at 73c @ 80c gal. as to seller and quantity. Buyers are showing a normal interest in the market.

Acid Formic — Regular arrivals from abroad during the past three weeks has kept stocks here in about the same position. Interest from the textile trade is very routine at this time and the market is none too strongly held at 10½c @ 10¾c lb. for technical acid and 11c @ 11½c lb. for 90 per cent.

Acid Lactic — Has shown no change over the month and is holding quite steady on this market at the quoted levels.

Acid Oxalic — Business placed in the New York district continues quite brisk with manufacturers getting 11c lb. in good sized quantities. Small parcels aggregating 50 barrels were disposed of during last week at 11½c lb., delivered, in this territory. Sellers are having no trouble in placing their entire output.

Acid Tartaric — Domestic manufacturers announced the second of two 1c lb.

1914 July	1927 High	1927 Low	1927 Aver.		Current Market		1928 High	1928 Low
.....	.24	.24	.24	Acetaldehyde, drs 1c-1 wks...lb.	.24	.26	.26	.24
.....	.20	.20	.20	Acetanilid, tech, 150 lb bbl....lb.	.23	.24	.24	.23
.....	.29	.29	.29	Acetic Anhydride, 92-95%, 100 lb cbys.....lb.	.29	.35	.35	.29
.....	.38	.32	.37	Acetin, tech drums.....lb.				
.02½	.12	.12	.12	Acetone, CP, 700 lb drums c-1 wks.....lb.	.....	.13	.13	.13
1918	1.65	1.65	1.65	Acetone Oil, drs NY.....gal.	1.65	1.75	1.75	1.65
.....	.42	.42	.42	Acetyl Chloride, 100 lb cby...lb.	.42	.45	.45	.42
				Acids				
1.50	3.38	3.38	3.38	Acid Acetic, 28% 400 lb bbls c-1 wks.....100 lb.	.....	3.38	3.38	3.38
.....	11.92	11.92	11.92	Glacial, bbl c-1 wk...100 lb	.....	11.92	11.92	11.92
.....	.98	.98	.98	Anthranilic, refd, bbls.....lb.	.98	1.00	1.00	.98
.....	.80	.80	.80	Technical, bbls.....lb.	.....	.80	.80	.80
1.00	1.60	1.25	1.38	Battery, cbys.....100 lb.	1.60	2.25	2.25	1.60
.23	.57	.57	.57	Benzoic, tech, 100 lb bbls...lb.	.57	.60	.60	.57
.07½	.08½	.08½	.08½	Boric, crys. powd, 250 lb bbls.....lb.	.08½	.11	.11	.08½
.....	1.25	1.25	1.25	Broenner's, bbls.....lb.	.....	1.25	1.25	1.25
1917	.85	.80	.84	Butyric, 100% basis cbys...lb.	.85	.90	.90	.85
1917	4.90	4.85	4.89	Camphoric.....lb.	.....	4.85	4.85	4.85
.....	.25	.25	.25	Carbolic, 10%, 50 gal bbls..lb.	.25	.28	.28	.25
....	.15	.15	.15	Chlorosulfonic, 1500 lb drums wks.....lb.	.15	.16	.16	.15
1918	.37	.25	.29	Chromic, 99%, drs extra...lb.	.25	.30	.30	.25
.....	1 00	1.00	1.00	Chromotropic, 300 lb bbls..lb.	1.00	1.06	1.06	1.00
.53	.44½	.43	.43 3/16	Citric, USP, crystals, 230 lb bbls.....lb.	.46	.59	.44½	.59
.....	.95	.95	.95	Cleve's, 250 lb bbls.....lb.	.95	.97	.97	.95
1918	.60	.57	.61	Cresylic, 95%, dark drs NY.lb.	.71	.73	.71	.68
1918	.70	.60	.63½	97-99%, pale drs NY....lb.	.73	.80	.74	.72
1918	.11	.10	.10½	Formic, tech 85%, 140 lb cby.....lb.	.11	.12	.12	.11
1918	.50	.50	.50	Gallic, tech, bbls.....lb.	.50	.55	.55	.50
1918	.74	.69	.72	USP, bbls.....lb.	...	.74	.74	.74
.....	1.00	1.00	1.00	Gamma, 225 lb bbls wks...lb.	1.00	1.06	1.06	1.00
1918	.57	.57	.57	H, 225 lb bbls wks.....lb.	.57	.63	.63	.57
.....	.67	.65	.65½	Hydriodic, USP, 10% soln cbylb.	...	.67	.67	.67
.....	.45	.45	.45	Hydrobromic, 48%, coml, 155 lb cbys wks..... ...lb.	.45	.48	.48	.45
				Hydrochloric, CP, see Acid Muriatic.....				
.....	.80	.80	.80	Hydrocyanic, cylinders wks lb.	.80	.90	.90	.80
.03	.06	.06	.06	Hydrofluoric, 30%, 400 lb bbls wks.....lb.	.....	.06	.06	.06
.....	.11	.11	.11	Hydrofluosilicic, 35%, 400 lb bbls wks.....lb.	.....	.11	.11	.11
.....	.85	.85	.85	Hypophosphorous, 30%, USP, demijohns.....lb.	.....	.85	.85	.85
.019	.05½	05½	.05½	Lactic, 22%, dark, 500 lb bbls lb.	.04¼	.05½	.06	.04¼
.04	.13	.13	.13	44%, light, 500 lb bbls ...lb.	.12	.12½	.13½	.12
.....	.52	.52	.52	Laurent's, 250 lb bbls.....lb.	.52	.54	.54	.52
.....	.60	.60	.60	Metanilic, 250 lb bbls.....lb.	.60	.65	.65	.60
1918	.07½	.07½	.07½	Mixed Sulfuric-Nitric..... drs wks.....N unit	.07½	08	.08	.07½
1918	.01	.01	.01	drs wks.....S unit	.01	.01½	.01½	.01
.....	.21	.18	.19½	Monochloroacetic, tech bbl.lb.	.18	.21	.21	.18
.....	1.65	1.65	1.65	Monosulfonic, F Delta bbls.lb.	.....	.65	.65	.65
1.15	1.35	1.35	1.35	Muriatic, 18 deg, 120 lb cbys c-1 wks.....100 lb.	.....	1.35	1.35	1.35
1.30	1.70	1.70	1.70	20 degrees, cbys wks..100 lb.	1.70	1.80	1.80	1.70
.....	.95	.95	.95	N & W, 250 lb bbls.....	.95	.95	.95	.95
1918	.55	.55	.55	Naphthionic, tech, 250 lb .....lb.	.55	.59	.59	.55
3.37½	5.00	5.00	5.00	Nitric, 36 deg, 135 lb cbys c-1 wks.....100 lb.	.....	5.00	5.00	5.00
4.50	6.00	6.00	6.00	40 deg, 135 lb cbys, c-1 wks.....100 lb.	.....	6.00	6.00	6.00
.07½	.11½	.11	.11	Oxalic, 300 lb bbls wks NY..lb.	.11	.11½	.11½	.11
.036	.08	.07	.07½	Phosphoric 50%, 150 lb cby.lb.	.08	.08½	.08½	.08
.23	.19	.16	.16½	Syrupy, USP, 70 lb drs...lb	.....	.16	.16	.16
1918	.50	.50	.50	Picramic, 300 lb bbls.....lb	.....	.50	.50	.50
.50	.45	.30	.41½	Picric, kegs.....lb.	.40	.50	.50	.40
.....	.86	.86	.86	Pyrogallic, technical, 200 lb bbls.....lb.	.....	.86	.86	.86
.22½	.27	.27	.27	Salicylic, tech, 125 lb bbl...lb.	.27	.32	.32	.27
1918	.15	.15	.15	Sulfanilic, 250 lb bbls.....lb.	.15	.16	.16	.15
1.00	1.60	1.60	1.60	Sulfuric, 66 deg, 180 lb cbys 1c-1 wks.....100 lb.	1.60	1.95	1.95	1.60
1.00	1.20	1.20	1.20	1500 lb dr wks.....100 lb.	.....	1.20	1.20	1.20
.87½	1.10	1.10	1.10	60°, 1500 lb dr wks..100 lb.	.....	1.12½	1.12½	1.12½
1.25	1.50	1.50	1.50	Oleum, 20%, 1500 lb drs 1c-1 wks.....100 lb.	.....	1.52½	1.52½	1.52½
.....	42.00	42.00	42.00	40%, 1c-1 wks net.....ton	.....	42.00	42.00	42.00
.55	.30	.30	.30	Tannic, tech, 300 lb bbls...lb.	.30	.40	.40	.30
.30½	.37	.29½	.32½	Tartaric, USP, crys, powd, 300 lb bbls.....lb.	.37	.38	.38	.34½
.....	.85	.85	.85	Tobias, 250 lb bbls.....lb.	.....	.85	.85	.85

Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Mar. 1928 67.8c

advances on March 31. This places all grades, crystals, granular and powdered at 38c lb. for domestic. Imported is available at figures slightly under these. The market is very firm in all directions for both imported and domestic.

Albumen — Both grades of egg albumen have declined in price during the past month, due to a continued absence of any concerted demand. Edible is now being quoted at 79c @ 84c lb., a decline of 1c lb. since last quoted, while technical is being quoted at 70c @ 75c lb., a decline of 3c lb. According to advices from dealers in Tientsin, China, Chinese dried eggs will cost New York buyers about ten per cent. more this year. Opening prices for 1928 named by the Ching Hsing egg factory at Paotingfu would bring the cost C. I. F. to 64 cents a pound for dried albumen. According to these prices, albumen in assorted shipments will be about $56.14 per 100 lbs., and in single shipments, $57.14 per 100 lbs., f. o. b. Paotingfu. F. O. B. Tientsin prices are .99⅜c per 100 lbs. higher than Paotingfu quotations. Reports from China also indicate that producers are anticipating no difficulty in meeting seasonal demand.

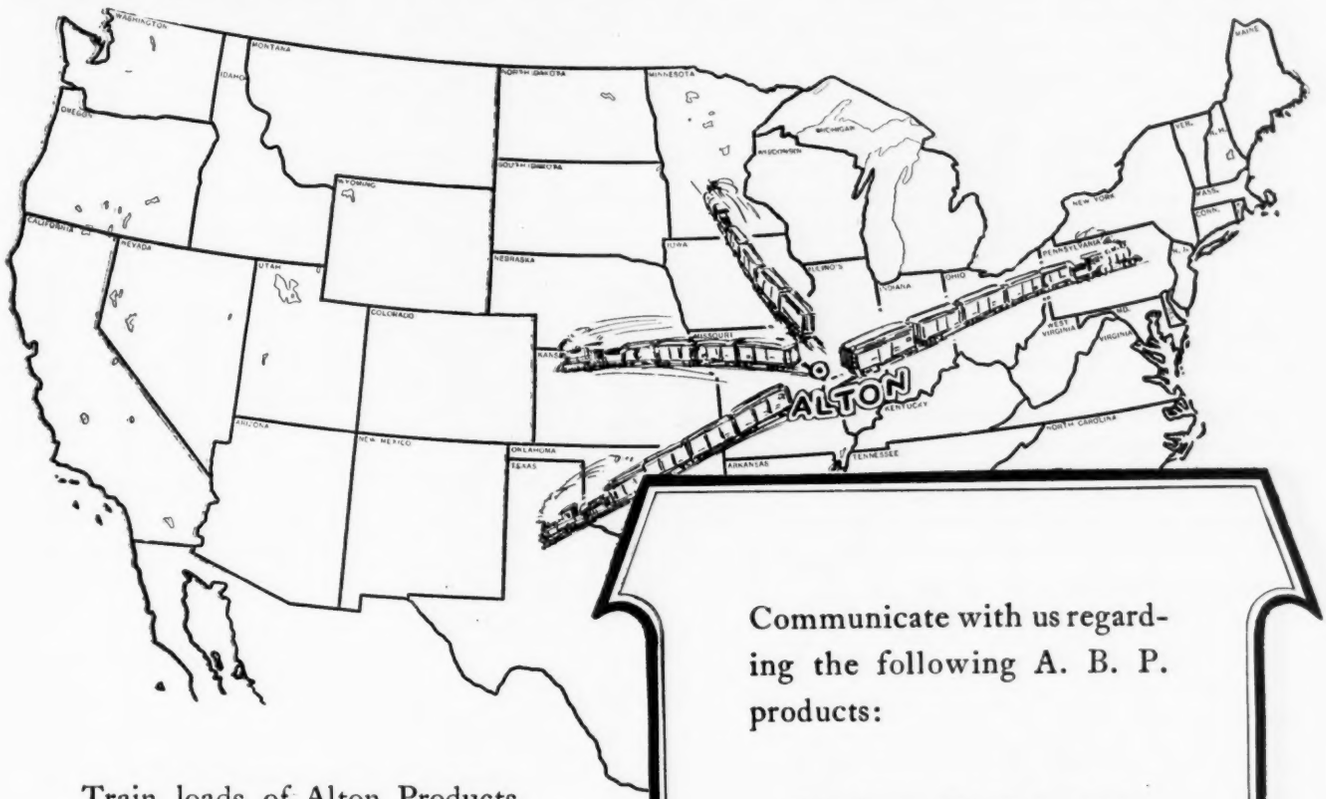
In accordance with these conditions in the egg albumen market, prices on blood albumen have also declined during the month, now being quoted at 43c @ 47c lb.

Alcohol — Rumors are heard of an expected announcement before the fifteenth of April of prices to apply for the balance of this year by one producer. No material change, if any, is expected. The opinion is expressed by some producers that the new agreement by which all distillers will file public statements of their current price lists with the Alcohol Manufacturers' Association will have a strengthening effect on the market, as it will lessen the tendency to cut prices from a schedule which is known to other producers. Sales at the moment are about as can be expected for this off season, with only the year round buyers showing any interest in the market. Persistent reports of a merger involving three of the smaller producers as well as one or two concerns closely allied with the alcohol industry is of prime interest among the producers at this writing.

Ammonia — Spot interest in both anhydrous and aqua has fallen off sharply during the month. However producers are very well satisfied with the volume of business placed on contract for the year and are not pushing for the spot business. The anhydrous market retains its strong position in all directions and is held at 13½c @ 14c lb; aqua at 3c @ 3½c lb.

1914	1927				Current	1928	
July	High	Low	Aver.		Market	High	Low
.....	2.75	2.00	2.60	Trichloroacetic, bottles....lb.	.....	2.75	2.75	2.75
.....	2.00	2.00	2.00	Kegs....lb.	.....	2.00	2.00	2.00
.....	1.00	1.00	1.00	Tungstic, bbls....lb.	1.00	1.25	1.25	1.00
.19	.45	.45	.45	Albumen, blood, 225 lb bbls...lb.	.43	.47	.55	.43
.40	.95	.80	.87	Egg, edible....lb.	.79	.84	.84	.79
.....	.92	.77	.82	Technical, 100 lb drs....lb.	.70	.75	.80	.70
1918	.60	.60	.60	Vegetable, edible....lb.	.60	.65	.65	.60
.....	.50	.50	.50	Technical....lb.	.50	.55	.55	.50
.....	20	.19	.19½	Alcohol Butyl, Normal, 50 gal drs c-1 wks....lb.	.....	18.25	.20	.18½
.....	.20½	.19½	.19½	Drums, 1c-1 wks....lb.	.....	18.75	.19½	.18½
.....	.19½	.18½	.19	Tank cars wks....lb.	.....	17.75	.19	.17½
.....	.....	.....	.....	Amyl (from pentane)				
.....	.....	.....	.....	drs c-l wks....gal.	1.90	2.25	2.25	1.90
1.70	1.70	1.70	1.80	Diacetone, 50 gal drs del...gal.	1.70	1.80	1.80	1.70
2.50	3.70	3.70	3.70	Ethyl, USP, 190 pf, 50 gal bbls....gal.	.....	2.65	3.70	2.65
.....	.50	.50	.50	Anhydrous, drums....gal.	.....	.66½	.55	.50
1919	.52	.37½	.46	Completely denatured, No. 1, 190 pf, 50 gal drs drums extra....gal.	.....	.48½	.52	.48½
1918	.50	.29	.42	No. 5, 188 pf, 50 gal drs. drums extra....gal.	.....	.43	.50	.43
.....	.46	.25	.40	Tank, cars....gal.	.....	.41	.46	.41
.....	1.00	1.00	1.00	Isopropyl, ref, gal drs....gal.	1.00	1.25	1.25	1.00
.....	1.00	1.00	1.00	Propyl Normal, 50 gal dr...gal.	.....	1.00	1.00	1.00
.....	.80	.80	.80	Aldehyde Ammonia, 100 gal dr lb	.80	.82	.82	.80
1918	.65	.65	.65	Alpha-Naphthol, crude, 300 lb bbls....lb.	.....	.65	.65	.65
1917	.35	.35	.35	Alpha-Naphthylamine, 350 lb bbls....lb.	.35	.37	.37	.35
1.75	3.25	3.15	3.08½	Alum Ammonia, lump, 400 lb bbls, 1c-1 wks....100 lb.	3.25	3.30	3.30	3.25
5.00	5.25	5.25	5.25	Chrome, 500 lb casks, wks ....100 lb.	5.25	5.50	5.50	5.25
4.00	3.50	3.10	3.43	Potash, lump, 400 lb casks wks....100 lb.	3.10	3.20	3.20	3.10
5.00	5.25	5.25	5.25	Chrome, 500 lb casks wks ....100 lb.	5.25	5.50	5.50	5.25
.....	3.75	3.75	3.75	Soda, ground, 400 lb bbls wks....100 lb.	.....	3.75	3.75	3.75
17.00	27.00	26.00	26.08	Aluminum Metal, c-1 NY.100 lb.	.....	24.30	26.00	24.30
.....	.35	.35	.35	Chloride Anhydrous, 275 lb drums....lb.	.35	.40	.40	.35
.12	.17	.17	.17	Hydrate, 96%, light, 90 lb bbls....lb.	.17	.18	.18	.17
.....	.23	.23	.23	Stearate, 100 lb bbls....lb.	.18	.22	.24	.18
1.25	1.75	1.75	1.75	Sulfate, Iron, free, bags c-1 wks....100 lb.	.....	1.75	1.75	1.75
.87½	1.40	1.35	1.35½	Coml, bags c-1 wks..100 lb.	.....	1.40	1.40	1.40
.....	1.15	1.15	1.15	Aminoazobenzene, 110 lb kegs.lb.	.....	1.15	1.15	1.15
				Ammonium				
.25	.13½	.10	.10½	Ammonia, anhyd, 100 lb cyl...lb.	.....	.13½	.13½	.13½
.04½	.03	.02½	.03	Water, 26°, 800 lb dr del....lb.	.....	.03	.03	.03
.....	.21	.21	.21	Bifluoride, 300 lb bbls....lb.	.21	.22	.22	.21
.08	.08¼	.08¼	.08¼	Carbonate, tech, 500 lb cs...lb.	.08¼	.09	.09	.08¼
6.25	5.05	4.85	5.00	Chloride, White, 100 lb. bbls. wks....100 lb.	4.65	5.15	5.15	4.65
.05½	.07	.05½	.06	Gray, 250 lb bbls wks....lb.	5.40	5.75	5.75	5.40
.10	.11	.11	.11	Lump, 500 lb cks spot....lb.	.11	.11½	.11½	.11
.....	.15	.15	.15	Lactate, 500 lb bbls....lb.	.15	.16	.16	.15
.15	.06	.06	.06	Nitrate, tech, casks....lb.	.06	.10	.10	.06
.....	.27½	.27½	.27½	Persulfate, 112 lb kegs....lb.	.35	.38	.38	.27½
.....	.18	.18	.18	Phosphate, tech, powd, 325 lb bbls....lb.	.....	.18	.18	.18
2.60	2.30	2.55	2.41	Sulfate, bulk c-1....100 lb.	.....	2.90	2.90	2.40
2.60	2.55	2.35	2.42	Southern points....100 lb.	.....	3.00	3.00	2.55
.....	59.70	56.85	57.56	Nitrate, 26% nitrogen 31.6% ammonia imported bags....ton	.....	60.85	60.85	60.85
.....	.55	.55	.55	Sulfocyanide, kegs....lb.	.55	.60	.60	.55
1.55	2.25	1.90	2.10½	Amyl Acetate, (from pentane) drs....gal.	1.90	2.25	2.25	1.90
				Alcohol, see Fusel Oil....				
.10½	.15½	.15	.15	Aniline Oil, 960 lb drs....lb.	.15½	.16½	.16½	.15½
.32	.41	.41	.41	Annatto, fine....lb.	.41	.48	.48	.41
.....	.90	.90	.90	Anthraquinone, sublimed, 125 lb bbls....lb.	.90	1.00	1.00	.90
.....	.11½	.14	.12	Antimony, metal slabs, ton lots ....lb.	.....	.09¾	.11½	.09½
.03½	.15½	.14	.15	Needle, powd, 100 lb cs....lb.	.....	.10	.12	.10
1918	.17	.17	.17	Chloride, soln (butter of) cbys....lb.	.17	.18	.18	.17
.06	.16½	.16½	.16½	Oxide, 500 lb bbls....lb.	.....	.10	.12	.10
.11½	.28	.25½	.26½	Salt, 66%, tins....lb.				
.18	.20	.16	.17¼	Sulfuret, golden, bbls....lb.	.16	.20	.20	.16
.15	.42	.37½	.38	Vermilion, bbls....lb.	.38	.42	.42	.38
.14	.18	.18	.18	Archil, conc, 600 lb bbls....lb.	.17	.19	.19	.17
.08	.12	.12	.12	Double, 600 lb bbls....lb.	.12	.14	.14	.12
.....	.16	.14	.15	Triple, 600 lb bbls....lb.	.15	.16	.16	.15
.....	.15	.12½	.13½	Argols, 80%, casks....lb.	.....	.08	.08	.08
.....	.08	.03	.06½	Coude, 30%, casks....lb.	.15	.16	.16	.15
.05½	.10½	.10½	.10½	Arsenic, Red, 224 lb kegs, cs..lb.	.10½	.11	.11	.10½
.03	.04	.03½	.04	White, 112 lb kegs....lb.	.03½	.04	.04	.03½
.....	14.75	14.75	14.75	Asbestine, c-1 wks....ton	.....	14.75	14.75	14.75
.....	47.50	47.50	47.50	Barium, Carbonate, 200 lb bags wks....ton	47.00	50.00	50.00	47.00
.13	.12	.12	.12	Chlorate, 112 lb kegs NY...lb.	.12	.12½	.12½	.12
30.00	65.00	57.50	60.70	Chloride, 800 lb bbl wks...ton	55.00	60.00	60.00	55.00
1916	.13	.13	.13	Dioxide, 88%, 690 lb drs...lb.	.13	.13½	.13½	.13
.....	.04½	.04½	.04½	Hydrate, 500 lb bbls....lb.	.04	.04½	.04½	.04½
.05½	.07½	.07½	.07½	Nitrate, 700 lb casks....lb.	.07½	.08	.08	.07½
17.00	23.00	23.00	23.00	Barytes, Floated, 350 lb bbls wks....ton	23.00	24.00	24.00	23.00
.....	.....	.....	.....	Bauxite, bulk, mines....ton	5.00	8.00	8.00	5.00
.39	.40	.37	.39	Beeswax, Yellow, crude bags..lb.	.37	.38	.38	.37
.40	.46	.38	.43	Refined, cases....lb.	.42	.43	.43	.42

ALTON PRODUCTS



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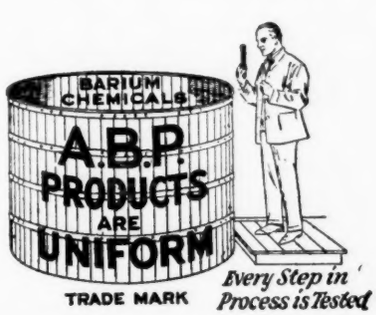

Communicate with us regarding the following A. B. P. products:

Barium Carbonate
Barium Chloride
Barium Sulphide
(Black Ash)
Iron Oxide
(Venetian Red)
Sodium Sulphide

We will gladly ship you samples of A. B. P. products on request.

Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Mar. 1928 67.8c

Ammonium Chloride — Domestic manufacturers continue to control the situation and are meeting imported competition wherever noted. Business is not very brisk as the battery trade which has been the main source of consumption for the past several years continues to feel the loss of radio business. Carlots are quoted at $4.65 100 lbs. at the works and $4.70 100 pounds delivered in the Metropolitan territory. No competition from importers has been heard of at these levels. Gray ammonium chloride is unchanged with sellers asking $5.40 100 pounds on a quiet market.

Ammonium Persulfate — A strong demand from the fur dyeing trade has continued throughout the month. Sellers are unable to take care of all the demand and the price is very firm at 30c @ 35c lb. as to quantity. This condition is not expected to continue for any protracted period and it will not be surprising to see the market fall off a bit when this initial demand has been taken care of.

Ammonium Sulfate — With the scarcity of stocks becoming increasingly evident, prices have maintained a continuous advance during the past month, so that they are now 25c per 100 lbs. higher than when last quoted. Even so, the demand continues apace as price per ammonia unit is still below that of sodium nitrate, although the differential is not nearly so marked as formerly.

Antimony — The market for metal has weakened considerably during the past month. China is now offering futures at 9¾c lb. duty paid, New York. Spot metal is available in carload lots at the same price. In addition to the fact that the market in China is off, additional factors are contributing to the weakness of the market here. Consumption has dropped off considerably due to curtailment of activity in consuming trades. Furthermore, an abundance of recovered antimony is being offered at present. Prices on both needle and oxide have also declined. Both are now at 10c lb., two cents a pound lower than when last quoted.

Barium Carbonate — President Coolidge signed the bill on March 27 authorizing the advance in duty on barium Carbonate to 1½c per pound and increase of ½c lb. over the duty prevailing. This move should serve to eliminate temporarily at least, cheap lots of imported goods which have kept the domestic market at current levels for a long while. To date no announcement has been forthcoming from domestic makers as to any change in the price, but it is believed that for some

1914 July	1927 High	1927 Low	1927 Aver.		Current Market	1928 High	1928 Low
.47½	.58	.56	.57½	White, cases, lb.	.56	.58	.58	.56
.....	.65	.65	.65	Benzaldehyde, technical, 945 lb drums wks, lb.	.65	.70	.70	.65
.....	.23	.21	.22	Benzene, 90%, Commercial, 8000 gal tanks wks, gal.	.21	.23	.23	.21
.....	.23	.21	.22½	CP, tanks works, gal.	.21	.23	.23	.21
.....	.70	.70	.70	Benzidine Base, dry, 250 lb bbls, lb.	.70	.74	.74	.70
.....	1.00	1.00	1.00	Benzoyl, Chloride, 500 lb drs, lb.	.....	1.00	1.00	1.00
.....	.....	.....	.....	Benzyl, Chloride, tech drs, lb.	.....	.25	.25	.25
.....	.24	.24	.24	Beta-Naphthol, 250 lb bbl wk, lb	.24	.26	.26	.24
.....	1.35	1.35	1.35	Naphthylamine, sublimed, 200 lb bbls, lb.	.....	1.35	1.35	1.35
.....	.63	.63	.63	Tech, 200 lb bbls, lb.	.63	.65	.65	.63
75.00	80.00	80.00	80.00	Blanc Fixe, 400 lb bbls wks, ton	80.00	90.00	90.00	80.00
1.20	2.25	2.00	2.23	Bleaching Powder, 300 lb drs c-1 wks contract, 100 lb.	.....	2.25	2.25	2.25
.....	2.25	2.00	2.02	700 lb drs c-1 wks contract, 100 lb.	.....	2.00	2.00	2.00
3.00	3.75	4.75	4.47½	Blood, Dried, FOB, NY, Unit	.....	5.10	5.25	5.10
.....	.....	.....	.....	Chicago, Unit	.....	5.00	5.00	5.00
.....	.....	.....	.....	S. American shipt, Unit	.....	4.50	5.00	4.50
.27	.30	.28	.29	Blues, Bronze Chinese Milori Prussian Soluble, lb.	.31	.35	.35	.31
28.50	38.00	29.00	29.04	Bone, raw, Chicago, ton	29.00	30.00	30.00	29.00
.....	.06	.06	.06	Bone, Ash, 100 lb kegs, lb.	.06	.07	.07	.06
.02½	.08½	.08½	.06	Black, 200 lb bbls, lb.	.....	.08½	.08½	.08½
20.00	30.00	28.00	29.46	Meal, 3% & 50%, Imp, ton	32.00	37.00	37.00	32.00
.04	.04½	.04½	.04½	Borax, crys, 500 lb bbls, lb.	.03½	.04½	.05	.03½
.07	.11	.11	.11	Bordeaux, Mixture, 16% pwd, lb.	.11	.12	.12	.11
.03½	.08	.08	.08	Paste, bbls, lb.	.08	.10	.10	.08
55.00	28.00	26.00	27.30	Brazilwood, sticks, shpmt, lb.	26.00	28.00	28.00	26.00
1918	.60	.60	.60	Bronze, Aluminum, powd blk, lb.	.60	1.20	1.20	.60
.....	.55	.55	.55	Gold, bulk, lb.	.55	1.25	1.25	.55
.....	1.60	1.42	1.52	Butyl, Acetate, normal drs lc-1 wks, gal.	.....	1.45	1.60	1.60
.....	1.55	1.42	1.47½	Tank, drs wks, gal.	.....	1.40	1.55	1.55
.....	1.00	1.00	1.00	Secondary, 50 gal drs, gal.	1.00	1.05	1.05	1.00
.....	.70	.70	.70	Aldehyde, 50 gal drs wks, lb.	.....	.70	.70	.70
.....	.34	.34	.34	Propionate, drs, lb.	.34	.36	.36	.34
.....	.60	.60	.60	Stearate, 50 gal drs, lb.	.....	.60	.60	.60
.....	.57	.57	.57	Tartrate, drs, lb.	.57	.60	.60	.57
1918	1.50	1.35	1.42	Cadmium, Sulfide, boxes, lb.	1.35	2.00	2.00	1.35
				Calcium				
.....	3.50	3.50	3.50	Calcium, Acetate, 150 lb bags c-1, 100 lb.	.....	3.50	3.50	3.50
.....	.07½	.07½	.07½	Arsenate, 100 lb bbls c-1 wks, lb.	.07	.08	.08	.07
.....	.05	.05	.05	Carbide, drs, lb.	.05	.06	.06	.05
.....	1.00	1.00	1.00	Carbonate, tech, 100 lb bags c-1, lb.	1.00	1.00	1.00	1.00
1918	27.00	27.00	27.00	Chloride, Flake, 375 lb drs c-1 wks, ton	.....	25.00	27.00	25.00
12.00	21.00	21.00	21.00	Solid, 650 lb drs c-1 fob wks, ton	20.00	22.00	23.00	20.00
.....	52.00	52.00	52.00	Nitrate, 220 lb bbls c-1 NY, ton	.....	52.00	52.00	52.00
.....	.09	.09	.09	Phosphate, tech, 450 lb bbls, lb.	.07	.08	.08	.07
.42½	.72	.62	.68	Camphor, American, refined 250 lb bbls, lb.	.....	.62	.62	.62
.44½	.69	.60	.66	Japanese, ref, slabs, 100 lb cases, lb.	.60	.61	.61	.60
.....	.....	.....	.....	Camwood, Bark, ground bbls, lb.	.....	.18	.18	.18
.22	.33	.33	.30½	Candelilla Wax, bags, lb.	.....	.25	.28	.25
.....	.08	.08	.08	Carbon, Decolorizing, 40 lb bags c-1, lb.	.08	.15	.15	.08
.....	.12	.12	.12	Black, 100-300 lb cases lc-1 NY, lb.	.....	.12	.12	.12
.06½	.05½	.05½	.05½	Bisulfide, 500 lb drs lc-1 NY, lb.	.05½	.06	.06	.05½
.....	.06	.06	.06	Dioxide, Liq, 20-25 lb cyl, lb.	.....	.06	.06	.06
.07½	.07	.07	.07	Tetrachloride, 1400 lb drs delivered, lb.	.07	.07½	.07½	.07
.50	.50	.50	.50	Carnauba Wax, Flor, bags, lb.	.....	Nom.	.50	.50
.....	.90	.54	.60½	No. 1 Yellow, bags, lb.	.54	.55	.60	.54
.32	.37	.24	.31	No. 2 N Country, bags, lb.	.....	.36	.38	.34
.42½	.68	.48	.56	No. 2 Regular, bags, lb.	.51	.52	.56	.51
.....	.18½	.15½	.17	Casein, Standard, ground, lb.	.16	.17	.18½	.16
.....	.34	.26	.32½	Celluloid, Scraps, Ivory cs, lb.	.26	.30	.30	.26
.....	.18	.18	.18	Shell, cases, lb.	.18	.20	.20	.18
.....	.34	.26	.32½	Transparent, cases, lb.	.30	.32	.32	.30
.....	1.40	1.40	1.40	Cellulose, Acetate, 50 lb kegs, lb.	.....	1.40	1.40	1.40
.....	.03	.03	.03	Chalk, dropped, 175 lb bbls, lb.	.03	.03½	.03½	.03
.03	.02½	.02½	.02½	Precip, heavy, 560 lb cks, lb.	.....	.04½	.04½	.04½
.04	.04½	.04½	.04½	Light, 250 lb casks, lb.	.02½	.03½	.03½	.02½
.....	.18	.18	.18	Charcoal, Hardwood, lump, bulk wks, bu.	.18	.19	.19	.18
1918	.06	.06	.06	Willow, powd, 100 lb bbl wks, lb.	.06	.06½	.06½	.06
.....	.04	.04	.04	Wood, powd, 100 lb bbls, lb.	.04	.05	.05	.04
.....	.03	.02½	.03	Chestnut, clarified bbls wks, lb.	.02½	.03	.03	.02½
.04	.02	.01½	.02	25% tks wks, lb.	.01½	.02	.02	.01½
.....	.05½	.05½	.05½	Powd, 60%, 100 lb bgs wks, lb.	.....	.04 4/5	.04 4/5	.04 4/5
.....	.06½	.06½	.06½	Powd, decolorized bgs wks, lb.	.05½	.06	.06	.05½
8.00	8.00	8.00	8.00	China Clay, lump, blk mines, ton	8.00	9.00	9.00	8.00
.....	.01¼	.01¼	.01¼	Powdered, bbls, lb.	.01¼	.02	.02	.01¼
.....	10.00	10.00	10.00	Pulverized, bbls wks, ton	10.00	12.00	12.00	10.00
14.00	15.00	15.00	15.00	Imported, lump, bulk, ton	15.00	25.00	25.00	15.00
.....	.03	.03	.03	Powdered, bbls, lb	.03	.03½	.03½	.03
1918	.08	.08	.08	Chlorine, cyls lc-1 wks contract, lb.	.08	.09	.09	.08
1917	.05½	.04	.04	Liq tank or multi-car lot cyls wks contract, lb.	.....	.03½	.03½	.03½
1918	.07	.07	.07	Chlorobensene, Mono, 100 lb. drs lc-1 wks, lb.	.....	.07	.07	.07
.19	.20	.20	.20	Chloroform, tech, 1000 lb drs, lb.	.20	.22	.22	.20

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Main office 9 East 41st Street New York

Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Mar. 1928 67.8c

time, the current price has not netted much profit to the manufacturers. The spot market is held at $47.00 ton.

Barium Chloride — Consuming interest is not very brisk and has not been since last reported. Makers here still find imported competition troublesome and are meeting it in most cases. The importers are offering at $54.00 ton on the spot. This is for good sized parcels and sales of domestic have been made up to $60.00 ton, according to quantity.

Benzol — There has not been any change in the price during the month. Interest is good and sellers look to a firming of the market following the recent strength in the gasoline tank wagon price. Sales have been made of recent weeks at 21c gal. in moderate sized parcels.

Bleaching Powder — Consuming interest is at a low ebb. With the market in this routine shape there is little occasion to discuss price. The market is openly named at $2.25 100 lbs.

Blood — Business has been rather quiet during the month. The only price change has been in South American shipments, which are now quoted at $4.50 unit, a decline of 20c per unit.

Calcium Arsenate — There has been comparatively little interest shown in this and allied markets during the past month, with the exception of Paris green. Producers are maintaining prices but some shading is reported in Southern territory, especially Virginia.

Calcium Chloride — While manufacturers admit that a large volume of potential business is directly dependent on weather conditions during the next five months, they anticipate a good increase over the tonnage placed last year should normal Spring and Summer ensue. Even the presence of another producer in the field which served to force a reduction early in the year cannot dispel the belief that an increase over last year is highly probable. Some forward business has been placed at the prevailing levels of $20.00 ton for solid and $25.00 ton for flake.

Carnauba Wax — Conditions have improved considerably in the wax market during the past month. Trade and activity have increased. The only price change thus far has been an advance in No. 2, North Country, to 36c lb. Pennsylvania refiners have advanced their prices on wax, ⅛c lb., but this will not be reflected until later.

Casein — Not much activity is reported in this market. Prices are a bit lower, standard ground now being quoted at 16c @ 17c lb. There is some shading

1914	1927				Current	1928	
July	High	Low	Aver.		Market	High	Low
....	1.00	1.00	1.00	Chloropicrin, comml, cyls....lb.	1.00	1.35	1.35	1.00
.17	.27	.26	.26¾	Chrome, Green, CP.....lb.	.26	.29	.29	.26
.03½	.06½	.06½	.06½	Commercial.....lb.	.06½	.11	.11	.06½
.11	.17½	.16½	.16¾	Yellow.....lb.	.16½	.17	.17	.16½
				Chromium, Acetate, 8% Chrome				
.....	.05	.04½	.04¾	bbls.....lb.	.04¾	.05¾	.05¾	.04¾
1918	.05½	.05½	.05½	20° soln, 400 lb bbls.....lb.	.....	.05½	.05½	.05½
.....	.27	.27	.27	Fluoride, powd, 400 lb bbl..lb.	.27	.28	.28	.27
.....	.34½	.34½	.34½	Oxide, green, bbls.....lb	.34½	.35½	.35½	.34½
.....	9.50	9.00	9.08	Coal tar, bbls.....bbl	9.00	9.50	9.50	9.00
1.00	2.10	2.10	2.10	Cobalt Oxide, black, bags....lb.	2.10	2.22	2.22	2.10
.48	.92	.77	.85¾	Cochineal, gray or black bag..lb.	.84	.87	.87	.84
.42	.92	.77	.87½	Teneriffe silver, bags.....lb.	.....	.86	.86	.86
13.75	13.57½	12.90	12.97	Copper, metal, electrol...100 lb.	14.20	14.25	14.20	12.90
.13½	.16½	.16½	.16½	Carbonate, 400 lb bbls.....lb.	.16½	.17½	.17½	.16½
.....	.28	.28	.28	Chloride, 250 .lb bbls.....lb.	.....	.28	.28	.28
.....	.48	.48	.48	Cyanide, 100 lb drs.....lb.	.48	.50	.50	.48
.....	.16½	.16½	.16½	Oxide, red, 100 lb bbls.....lb.	.16½	.17	.17	.16½
				Sub-acetate verdigris, 400 lb				
.28	.18	.17	.18	bbls.....lb.	.18	.19	.19	.18
4.00	5.00	4.75	4.91¼	Sulfate, bbls c-1 wks...100 lb.	5.10	5.15	5.10	5.05
				Copperas, crys & sugar bulk				
13.00	17.00	13.00	13.33⅓	c-1 wks.....ton	13.00	14.00	14.00	13.00
.....	1.25	1.25	1.25	Sugar, 100 lb bbls.....100 lb.	1.25	1.35	1.35	1.25
				Cotton, Soluble, wet, 100 lb				
.80	.40	.40	.40	bbls.....lb.	.40	.42	.42	.40
.....	42.00	20.00	33.75	Cottonseed, S.E. bulk c-1...ton	.....	.....	.....	.....
.....	42.00	20.00	29.85	Meal S.E. bulk.....ton	.....	.....	.....	.....
26.50	35.00	21.50	30.38	7% Amm., bags mills...ton	36.00	37.00	37.00	36.00
				Cream Tartar, USP, 300 lb.				
.23¾	.27	.22	.24	bbls.....lb.	.26	.27½	.27½	.26
.53	.40	.40	.40	Creosote, USP, 42 lb cbys.....lb.	.40	.42	.42	.40
1918	.20	.20	.20	Oil, Natural, 50 gal drs....gal.	.17	.19	.19	.17
1918	.25	.25	.25	10-15% tar acid.....gal.	.21	.23	.23	.21
				25-30% tar acid.....gal.	.25	.28	.28	.25
1918	.17½	.17½	.17½	Cresol, USP, drums.....lb.	.17½	.20	.20	.17½
.07¾	.17	.16	.16½	Cudbear, English.....lb.	.16	.17	.17	.16
.05	.18½	.15	.18	Cutch, Rangoon, 100 lb bales lb.	.....	.18½	.18½	.18½
.....	.05	.05½	.05½	Borneo, Solid, 100 lb bale...lb.	.06	.07	.07	.06
				Cyanamide, bulk c-1 wks Amm.				
.....	1.82½	1.67½	1.78¾	.....lb.	.....	1.67½	1.67½	1.67½
.....	3.92	3.77	3.84½	Dextrin, corn, canary....100 lb.	4.67	4.87	4.87	3.77
3.00	3.87	3.72	3.78½	White, 130 lb bgs.....100 lb.	4.62	4.82	4.82	3.72
.05½	.08½	.08½	.08½	Potato, yellow, 220 lb bgs...lb.	.08	.09	.09	.08
.05½	.08½	.08½	.08½	White, 220 lb bags 1c-1....lb.	.08	.09	.09	.08
.....	.08½	.08	.08	Tapioca, 200 lb bags 1c-1...lb.	.08	.08¼	.08¼	.08
.....	3.80	3.80	3.80	Diaminophenol, 100 lb kegs...lb				
.....	2.95	2.85	2.93¼	Diamylphthalate, drs wks...gal.	.....	3.80	3.80	3.80
.....	3.25	3.25	3.25	Dianisidine, 100 lb kegs.....lb.	2.85	2.90	2.90	2.85
.....	.31½	.29½	.30½	Dibutylphthalate, wks.....lb.	.....	2.80	2.80	2.80
.....	.55	.55	.55	Dibutyltartrate, 50 gal drs....lb.	.29½	.31½	.31½	.29½
.....	.23	.23	.23	Dichloromethane, drs wks....lb.	.55	.65	.65	.55
.....	2.15	2.15	2.15	Diethylamine, 400 lb drs.....lb.	.23	.25	.25	.23
.....	1.85	1.85	1.85	Diethyl carbonate, drs.....gal.	.....	2.15	2.15	2.15
1918	.55	.55	.55	Diethylaniline, 850 lb drs.....lb.	1.85	2.00	2.00	1.85
.....	.20	.20	.20	Diethyleneglycol, drs.....lb.	.55	.60	.60	.55
.....	.....	.....	.....	Mono ethyl ether, drs....lb.	.10	.12	.12	.10
.....	.....	.....	.....	Mono butyl ether, drs....lb.	.25	.35	.35	.25
.....	.64	.64	.64	Diethylorthotoluidin, drs.....lb.	.64	.67	.67	.64
				Diethyl phthalate, 1000 lb				
.....	.25	.25	.25	drums.....lb.	.24	.26	.26	.24
				Diethylsulfate, technical, 50 gal				
.....	.30	.20	.25	drums.....lb.	.30	.35	.35	.30
.....	2.60	2.60	2.60	Dimethylamine, 400 lb drs....lb.	.....	2.62	2.62	2.62
1918	.32	.30	.31½	Dimethylaniline, 340 lb drs...lb.	.30	.32	.32	.30
.....	.45	.45	.45	Dimethylsulfate, 100 lb drs...lb.	.45	.50	.50	.45
1918	.15½	.15	.15½	Dinitrobenzene, 400 lb bbls...lb.	.15½	.16½	.16½	.15½
.....	.18	.18	.18	Dinitrochlorine, 300 lb bbl....lb.	.18	.19	.19	.18
				Dinitrochlorobenzene, 400 lb.				
1918	.15	.15	.15	bbls.....lb.	.15	.16	.16	.15
				Dinitronaphthalene, 350 lb bbls				
1917	.32	.32	.32	.....lb.	.32	.34	.34	.32
1918	.31	.31	.31	Dinitrophenol, 350 lb bbls....lb.	.31	.32	.32	.31
1918	.18	.15	.17¾	Dinitrotoluene, 300 lb bbls....lb.	.18	.19	.19	.18
				Diorthotolyguanidine, 275 lb				
.....	1.05	.85	.88	bbls wks.....lb.	.80	.85	.90	.80
1918	.48	.45	.45½	Diphenylamine.....lb.	.45	.47	.47	.45
.....	.....	.....	.....	Diphenylguanidine, 100 lb bbl.lb.	.64	.68	.72	.64
.....	.26	.26	.26	Dip Oil, 25%, drums.....lb.	.2C	.30	.30	.26
45.00	49.00	41.00	45.25	Divi Divi pods, bgs shipmt....lb.	.....	60.00	60.00	60.00
.02½	.04	.04	.04	Extract.....lb.	.05	.05½	.05½	.05
1918	.84	.72	.67½	Egg Yolk, 200 lb cases.....lb.	.73	.75	77	.73
				Epsom Salt, tech, 300 lb bbls				
1.00	2.00	1.75	1.87½	c-1 NY.....100 lb.	1.70	1.75	1.75	1.70
.22	.45	.37	.43	Esther, USP, 1880, 50 lb drs..lb.	.37	.38	.38	.37
				Ethyl Acetate, 85% Ester, 110				
.....	.90	.90	.90	gal drs.....gal.	.....	.75	.80	.75
.....	1.10	1.03	1.08	99%, gal drums.....gal.	.....	1.10	1.10	1.10
.....	1.05	1.05	1.05	Benzylaniline, 300 lb drs...lb.	1.05	1.11	1.11	1.05
.....	.50	.50	.50	Bromide, tech, drums.....lb.	.....	.70	.70	.70
.....	.22	.22	.22	Chloride, 200 lb. drums....lb.	.....	.22	.22	.22
.....	3.50	3.50	3.50	Lactate, drums works.....gal.	.....	3.50	3.50	3.50
1918	.30	.30	.30	Methyl Ketone, 50 gal drs..lb.	.....	.30	.30	.30
.....	.45	.45	.45	Oxalate, drums works.....lb.	.45	.55	.55	.45
.....	.70	.70	.70	Ethylene Bromide, 600 lb dr..lb.	.....	.7C	.70	.70
				Chlorhydrin, anhydrous, 50 gal				
.....	.75	.75	.75	drums.....lb.	.75	.85	.85	.75
.....	.15	.11	.11¼	Dichloride, 50 gal drums...lb.	.07	.10	.11	.07
.....	.30	.30	.30	Glycol, 50 gal drs wks.....lb.	.27	.30	.40	.25
.....	.....	.....	.....	Mono Butyl Ether drs. wks.	.27	.31	.27	.31
.....	.....	.....	.....	Mono Ethyl Ether drs. wks.	.20	.24	.20	.24
				Mono Ethyl Ether Acetate				
.....	.....	.....	.....	dr. wks.	.23	.26	.23	26.
1918	.62	.62	.62	Ethylidenaniline.....lb.	.62	.65	.65	.62
8.00	20.00	20.00	20.00	Feldspar, bulk.....ton	20.00	25.00	25.00	20.00
.....	15.00	15.00	15.00	Powdered, bulk works.....ton	15.00	21.00	21.00	15.00
				Ferric Chloride, tech, crystal				
.....	.07½	.07½	.07½	475 lb bbls.....lb.	..07½	.09	.09	.07½

ISCO CHEMICALS News Notes

"Over a Century of Service and Progress"

Factories:
Niagara Falls, N. Y.
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INNIS, SPEIDEN & COMPANY
ESTABLISHED 1816
46 CLIFF STREET, NEW YORK

Branches:
Chicago
Boston
Philadelphia
Cleveland
Gloversville

1816 APRIL, 1928 1928

CHEMICAL MARKETS GENERALLY HEALTHY

We consider the general condition of the Chemical Market as being in a healthy state. Business is running along smoothly and in good volume with a firm undertone and there have not been any decided increases or reductions in prices. Some products are in particularly active demand with supplies limited but in the main we should say that ample stocks are available for customers' needs and we are prepared to furnish practically all the products on our list on short notice.

The first three months of this year show a decided improvement over the same period a year ago. The "hand to mouth" principle of buying seems to be gradually disappearing and consumers are generally willing to buy ahead for their anticipated requirements. Contract withdrawals seem to be up to par.

Acetate of Soda—is still in very active demand with supplies limited. Prices are firmly maintained at from 5¾c to 6½c depending on the quantity and position.

Naphthalene Flakes and Balls—are in active demand with prices somewhat firmer, FLAKES bringing from 5c in carloads to 6 and 6½c for small lots. BALLS 1c higher.

Carbon Tetrachloride—is moving along nicely with ample supplies to meet the demand. No price changes have taken place.

White Arsenic—is firm with an increasing interest on the part of the consumer, owing to seasonal requirements and is quoted at from 4½c to 5½c.

Caustic Potash—We call your particular attention to our position in relation to the supply of this material. We are producing at Niagara Falls a very excellent quality, and we carry ample stocks at all times of German. This is available in the Solid, Broken and Ground forms and stocks are carried at the principal ports.

Caustic Soda—We are in excellent position to supply this from the works of our associate company, the Isco Chemical Company of Niagara Falls, New York. We can furnish it in Solid, Flake and Liquid forms in various packings and no order is too large nor too small for us to handle.

Bleaching Powder or Chloride of Lime—This is a companion product to CAUSTIC SODA. We are prepared to furnish a free flowing high test material guaranteed 35-37% available Chlorine packed in various size drums and we respectfully solicit your inquiries.

EIGHTY YEARS AGO

This Company had been in existence 32 years. Founded by Aaron Innis and associates in 1816 at Poughkeepsie, it took part in the early development of American industry in the first real expansion period following the War of 1812. George Innis, son of Aaron entered the business after the death of his father in 1844 and together with Howland Sherman carried on in that period of the Company's history, which immediately preceded the Civil War.

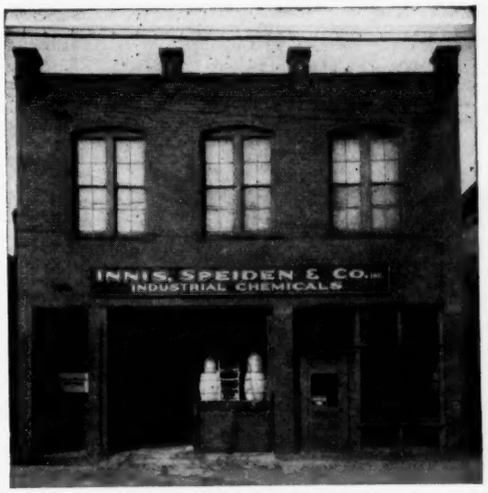
It was an era of enlightment in which chemical discoveries, common knowledge now in our schools and colleges, were events of world amazement and incredulous comment.

In the Spring of 1848 Louis Pasteur solved the phenomena of rotary polarization. Biot, who had studied the subject for 30 years, carefully followed Pasteur's procedure, and as carefully verified his results. Having satisfied himself he took Pasteur's arm and said, "My dear boy, I have loved science so much during my life, that this touches my very heart."

February, 1848 saw the last desperate efforts of the chartists in England to secure reforms. The movement ended in failure, but the right of the workingman to be considered became an accepted principle.

The same month a revolution in France over the King Louis, Phillipe I and the second Republic was formed. The revolutionary movement spread throughout Europe. Metternich, conservative premier of Austria, was forced to flee; the emancipation of Italy was begun, and the small German States revolted against their despotic rulers.

The War with Mexico was just over. Congressional debates defended and blamed President Polk; argued the annexation of a whole or a part of Mexico. Feeling ran high as to whether the new territories should be slave or free.



INNIS, SPEIDEN & CO.
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1913 Orange Avenue, Cleveland, Ohio

Conveniently located for Storage and Distribution of Spot Stocks.

EDITORIALS

COST OF DISTRIBUTION

At the recent chemical meeting sponsored by the United States Department of Commerce in Washington, statistics were revealed to show that one of the greatest red figure items in American business is its cost of distribution. Great progress has been made in reduction of manufacturing costs, and the field of distribution lags in comparison. Small orders are necessarily more expensive for both buyer and seller. Order enough, avoid costly duplication.

There's a thousand "Can't-be-doners,"
For one who says "It can";
But the whole amount of deeds that count
Is done by the latter clan.
For the "Can't-be-doners" grumble
And hamper, oppose and doubt,
While the daring man who says "It can,"
Proceeds to work it out.

—*Berton Braley.*

Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Mar. 1928 67.8c

being done, ¼c lb. being reported on firm bids.

Chestnut — Activity here is negligible. Twenty-five per cent. has declined to 1½c @ 2c lb. with no interest being shown.

Copper Sulfate — Much the same condition prevails now as was the case early in March. It is true that the demand has fallen off a bit from the agricultural buyers, but producers look for a resumption of this within a week or so. With the market named at $5.05 100 lbs. as rock bottom a good volume of business has been done at $5.10 upward according to quantity. Sellers are still reluctant to consider committing themselves further ahead than 60 days, which is an indication of the position of the market. Imported competition is negligible. The export demand has petered out to some extent, though sales have been made in Canada recently in competition with foreign offerings.

Copperas — The market retains the strength which it has shown since the first of the year. Makers are operating at capacity and find a ready market for the entire output at $13.00 ton in bulk.

Cream of Tartar — Continues very strong, based on the high raw material costs. Domestic sellers name 26¾c lb. in barrels and importers are ¼c lb. higher. Neither group are pressing for sale in view of the strong position of the market.

Dextrin — With corn at the highest price it has been during the last four years, the price advances in this market have been many and large. Since last reported prices on corn dextrin have advanced 40c lb. Canary is now quoted at $4.67 @ $4.87 per 100 lbs. with white 5c per 100 lbs. lower. Foreign potato dextrin and tapioca dextrin remain unchanged.

Divi Divi — Has been higher during the month but is now back at the same price level as when last quoted. Continues scarce but little buying is being done. These conditions will probably continue until arrival of new crop.

Egg Yolk — Despite advices from China that prices will be about ten per cent. higher than last year, consumption continues small and prices have declined during the past month. Now being quoted at 73c @ 75c lb., but this price is still relatively high in comparison with shell eggs. According to the reports from China, opening prices for 1928 by the Ching Hsing egg factory at Paotingfu would bring the cost C. I. F. New York to about 60 cents per pound for sprayed yolk. Prices named by the factory are, for assorted shipments, $52.17 per hundred

1914 July	1927 High	1927 Low	1927 Aver.		Current Market	1928 High	1928 Low
2.80	5.60	4.15	4.69	Fish Scrap, dried, wks.....unit	.....	Nom.	Nom.	Nom.
				Acid, Bulk 7 & 3½% delivered				
2.50	3.50	4.24	3.56½	Norfolk & Balt. basis...unit	.....	Nom.	Nom.	Nom.
.08	.14	12¾	.13¾	Flake, White, bbls.....lb.	.....	Nom.	Nom.	Nom.
.40	1.10	.90	1.01¾	Flavine, lemon, 55 lb cases...lb.	1.10	1.15	1.15	1.10
.40	1.10	.85	.89	Orange, 70 lb cases.....lb.	1.10	1.15	1.15	1.10
.....				Flavseed.....lb.				
.....	25.00	25.00	25.00	Fluorspar, 95%, 220 lb bags...lb.	.....	.....	.....	.....
.....	.....	.....	.....	Ex-dock.....ton	.....	.....	.....	.....
				Formaldehyde, aniline, 100 lb.	.....	25.00	25.00	25.00
.....	.39	.39	.39	drums.....lb.	.39	.42	.42	.39
.08½	.11½	.08¾	.10	USP, 400 lb bbls 1c-1 wks...lb.	.08½	.09	.09	.08½
.....	.02¾	.02½	.02½	Fossil Flour.....lb.	.02½	.04	.04	.02½
.....	15.00	15.00	15.00	Fullers Earth, bulk, mines...ton	15.00	20.00	20.00	15.00
.....	25 00	25.00	25.00	Imp, powd c-1 bags.....ton	25.00	30.00	30.00	25.00
.....	.17½	.17½	.17½	Furfural, 500 lb drums.....lb.	.17½	.19½	.19½	.17½
1.10	1.69	1.35	1.59	Fusel Oil, 10% impurities....gal.	.....	1.35	1.35	1.35
.01½	.04	.04	.04	Fustic, chips.....lb.	.04	.05	.05	.04
.....	.20	.20	.20	Crystals, 100 lb boxes.....lb	.20	.22	.22	.20
.06	.09	.09	.09	Liquid, 50°, 600 lb bbls....lb.	.09	.10	.10	.09
.08	.20	.20	.20	Solid, 50 lb boxes.....lb.	.20	.23	.23	.20
12.00	30.00	30.00	30.00	Sticks.....ton	30.00	32.00	32.00	30.00
1918	.50	.50	.50	G Salt paste, 360 lb bbls.....lb.	.50	.52	.52	.50
.12	.20	.20	.20	Gall Extract.....lb.	.20	.21	.21	.20
.04½	.08	.06	.....	Gambier, common 200 lb cs...lb.	.08	.09	.09	.08
1917	.12	.12	.12	25% liquid, 450 lb bbls....lb.	.12	.14	.14	.12
.05½	.23	.11	.17	Singapore cubes, 150 lb bg..lb.	.11	.12	.12	.11
.....	.45	.30	.43¾	Gelatin, tech, 100 lb cases....lb.	.45	.50	.50	45
.....	3.14	3.14	3.14	Bags, c-1 NY.....100 lb.	3.14	3.24	3.24	3.14
				Glauber's Salt, tech, 250 lb bags				
.60	1.05	1.05	1.05	c-1 wks.....100 lb.	.75	1.05	1.05	.75
				Glucose (grape sugar) dry 70-				
.....	3.24	3.24	3.24	80° bags c-1 NY....100 lb.	3.24	3.34	3.34	3.24
				Tanner's Special, 100 lb bags				
.....	3.14	3.14	3.14	.....100 lb.	.....	3.14	3.14	3.14
.12	.20	.20	.20	Glue, medium white, bbls....lb.	.20	.24	.24	.20
.18	.22	.22	.22	Pure white, bbls.....lb.	.22	.26	.26	.22
.19½	.29	.22	.24	Glycerin, CP, 550 lb drs.....lb.	.15½	.15½	.19	.15½
.19½	.25	.17	.21½	Dynamite, 100 lb drs.....lb.	.11½	.12	.15	.11½
.....	.....	.....	.....	Saponification, tanks.....lb.	.08½	.08½	.10½	.08½
.....	.....	.....	.....	Soap Lye, tanks.....lb.	.07½	.07½	.09½	.07½
.....	15.00	15.00	15.00	Graphite, crude, 220 lb bgs..ton	15.00	35.00	35.00	15.00
.....	.05	.05	.05	Flake, 500 lb bbls.....lb.	.06	.09	.09	.06

Gums

				Gum Accroides, Red, coarse and				
.....	.03¾	.03¾	.03¾	fine 140-150 lb bags....lb.	.03¾	.04½	.04½	.03¾
.....	.06	.06	.06	Powd, 150 lb bags.....lb.	.06	.06½	.06½	.06
.....	.18	.18	.18	Yellow, 150-200 lb bags..lb.	.18	.20	.20	.18
				Animi (Zanzibar) bean & pea				
.25	.40	.35	.39	250 lb cases.....lb.	.35	.40	.40	.35
.....	.60	.50	.57½	Glassy, 250 lb cases.....lb.	.50	.55	.55	.50
				Asphaltum ,Barbadoes				
.05	.09	.09	.09	(Manjak) 200 lb bags..lb	.09	.12	.12	.09
.15	.15	.15	.15	Egyptian, 200 lb cases.....lb.	.15	.17	.17	.15
				Gilsonite Selects, 200 lb bags				
36.00	55.00	55.00	55.00	.....ton	58.00	65.00	65.00	55.00
				Damar Batavia standard 136,				
.17½	.26½	.26½	.25	lb cases.....lb.	.23	.23½	.23½	.23
.....	.10½	.07	.10	Batavia Dust, 160 lb bags..lb.	.10½	.11	.11	.10½
.....	.18½	.17½	.18½	E Seeds, 136 lb cases....lb.	.17	.17½	.17½	.17
				F Splinters, 136 lb cases and				
.....	.14	.09	.13	bags.....lb.	.14	.14½	.14½	.14
.....	.34	.33½	.34	Singapore, No. 1, 224 lb caseslb.	.30	.30½	.30½	.30
.14	.22½	.21	.22½	No. 2, 224 lb cases.....lb.	.22	.23	.23	.20
.08	.14	.11	.12	No. 3, 180 lb bags.....lb.	.14	.15	.15	.14
				Benzoin Sumatra, technical, 120				
.34	.35	.30	.30	lb cases.....lb.	.33	.35	.35	.33
				Copal Congo, 112 lb bags, clean				
.....	.14	.12	.13	opaque.....lb.	.14	.15	.15	.14
.12	.08¾	.08¾	.08¾	Dark, amber.....lb.	.08¾	.09	.09	.08¾
.18	.12½	.12½	.12½	Light, amber.....lb	.12½	.14	.14	.12½
.25	.35	.35	.35	Water white.....lb	.35	.36	.36	.35
				Mastic .....lb.	.58	.60	.60	.58
				Manila, 180-190 lb baskets				
.15	.16	.16	.16	Loba A.....lb.	.16	.16½	.16½	.16
.....	.15	.15	.15	Loba B.....lb.	.15	.15½	.15½	.15
.....	.14½	.13	.13¾	Loba C.....lb.	.13	.13½	.13½	.13
.....	.16	.16	.16	Pale bold, 224 lb cs.....lb.	.16	.18	.18	.16
.08½	.14	.12	.13	Pale nubs.....lb	.12	.12½	.12½	.12
.....	.07½	.07½	.07½	East Indies chips, 180lb bagslb.	.08	.08½	.08½	.07½
.....	.....	.....	.....	Pale bold, 180 lb bags.. .lb.	.17	.17½	.17½	.17
.....	.17	.17	.17	Pale nubs.....lb.	.14	.14½	.14½	.14
.....	.....	.....	.....	Pontianak, 224 lb cases....lb.				
.13½	.29	.25	.26½	Pale bold gen No. 1.....lb.	.25	.25½	.25½	.25
.07	.19	.13	.15½	Pale gen chips spot.....lb.	.13	.14½	.14½	.13
.....	.14	.13	.13¾	Elemi, No. 1, 80-85 lb cs...lb.	.13½	.14	.14	.13
.....	.13	.12	.12¾	No. 2, 80-85 lb cases.....lb.	.13	.13½	.13½	.13
.....	.13	.11	.11	No. 3, 80-85 lb cases.....lb.	.12	.13	.13	.12
				Kauri, 224-226 lb cases No. 1				
.50	.67½	.57	.63½	.....lb.	.50	.57	.57	.50
.32	.44½	.38	.41	No. 2 fair pale.....lb.	.35	.38	.38	.35
				Brown Chips, 224-226 lb				
.07½	.14½	.10	.12	cases.....lb.	.10	.12	.12	.10
.....	.42	.38	.40	Bush Chips, 224-226 lb				
				cases.....lb.	.38	.40	.40	.38
				Pale Chips, 224-226 lb cases				
.....	.31½	.24½	.25	.....lb.	.24½	.26	.26	.24½
				Sandarac, prime quality, 200				
.19	.27	.25	.25	lb bags & 300 lb casks...lb.	.26	.27	.27	.26
1917	.12	.12	.12	Hematine crystals, 400 lb bbls.lb.	.17	.20	.20	.17
1917	.09	.09	.09	Paste, 500 bbls.....lb	.....	.11	.11	.11
.02¾	.03½	.03½	.03½	Hemlock 25%, 600 lb bbls wks lb.	.03½	.03¾	.03¾	.03½
.....	16.00	16.00	16.00	Bark.....ton	.....	16.00	16.00	16.00
.....	.60	.45	.56	Hexalene, 50 gal drs wks.....lb.	.....	.60	.60	.60
.....	.80	.62	.72	Hexamethylenetetramine, drs.lb.	.62	.65	.65	.62
2.60	3.35	2.75	3.08	Hoof Meal, fob Chicago.....unit	.....	.....	.....	.....

Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Mar. 1928 67.8c

pounds, f. o. b. Paotingfu; and $53.66 per hundred pounds in single shipments. F. O. B. Tientsin price is 99⅜c per hundred pounds higher than Paotingfu price. The United States imported about 25,000,000 pounds of egg products last year, most of which came from China.

Ethyl Acetate — Seems in a bit better position at this writing. Producers are experiencing an increased inquiry and the market is steady at the openly quoted level of 75c @ 80c gal. as to quantity.

Formaldehyde — There has not been any undue interest on consumers part during the month and at the moment the market is rather routine. What business is being done is on the basis of 8½c lb. in carlots and from 8¾c @ 9c lb. in smaller lots according to quantity.

Glycerin — Although the same routine condition is still existant in the dynamite market, the price has not declined over the month of March. This is the first time in several months that a summation of the months activities has not shown a decline from the previous month. In fact in some quarters the tendency is to name a higher market for this grade. The inside price for dynamite is now at 11½c lb. with quotations ranging to 12½c lb. according to sellers views on the strength of the market. Consuming interest is still very negligible and the market is named as nominal in most quarters. Chemically pure has fallen in price for the month, now being named at 15½c lb. in bulk. However, this grade is considered in a better position than dynamite, as there is some movement into consuming channels. Producers are holding saponification at 8¼c lb. for 88% delivered, and lye at 7¼c lb., works.

Glauber Salts — Interest in the New England textile district is very routine. This condition is responsible for the extremely low market which has been prevaling on imported goods and to some extent domestic, in this territory. Conditions are not so bad in the New York district and sellers are getting somewhere nearer the quoted levels. At best, practically all chemicals used in the textile industry are routine because of the dullness in that field.

Gums — Activity has been very fair during the past month. Singapore No. 2 has advanced to 22c @ 23c lb., and East Indies, chips, to 8c @ 8½c lb., due to existing scarcity of spot stocks of both grades.

Japan Wax — Has reflected the slightly improved conditions prevalent during the past month by an advance in price to 18c % 18½c lb.

1914 July	1927 High	1927 Low	1927 Aver.		Current Market	1928 High	1928 Low
.....	3.90	3.00	3.57	South Amer. to arrive....unit	.....	.....	.....
.....	.30	.22	.24	Hydrogen Peroxide, 100 vol, 140 lb cbys.....lb.	.24	.26	.26	.24
1917	.12	.12	.12	Hpyernic, 51°, 600 lb bbls....lb.	.12	.15	.15	.12
.58	1.28	1.20	1.27	Indigo Madras, bbls.....lb.	1.28	1.30	1.30	1.28
.....	.14	.14	.14	20% paste, drums.....lb.	.14	.15	.15	.14
.....	.07½	.07½	.07½	Solid, powder.....lb.	.07½	.08	.08	.07½
				Iron Chloride, see Ferric or Ferrous				
.04	.09	.09	.09	Iron Nitrate, kegs.....lb.	.09	.10	.10	.09
1.12½	2.50	2.50	2.50	Coml, bbls.....100 lb.	2.50	3.25	3.25	2.50
.....	.10	.10	.10	Oxide, English.....lb.	.10	.12	.12	.10
.....	.02½	.02½	.02½	Red, Spanish.....lb.	.02½	.03½	.03½	.02½
.....	.85	.85	.85	Isopropyl Acetate, 50 gal drs.gal.	.85	.90	.90	.85
.11½	.29	.17	.19	Japan Wax, 224 lb cases.....lb.	.18	.18½	.19	.18
.....	60.00	60.00	60.00	Kieselguhr, 95 lb bgs NY....ton	60.00	70.00	70.00	60.00
.....	14.00	13.00	13.33	Lead Acetate, bbls wks...100 lb.				
9.12½	14.00	13.00	13.33	White crystals, 500 lb bbls wks.....100 lb.	13.00	13.50	13.50	13.00
.04½	.15½	.13½	.13	Arsenate, bbls 1c-1 wks.....lb.	.13	.15	.15	.13
3.90	7.80	6.20	6.78	Metal, c-1 NY.....100 lb.	.....	6.10	6.25	6.25
.07½	.14	.14	.14	Nitrate, 500 lb bbls wks....lb.	.....	.14	.14	.14
.17½	.17½	.17½	.17½	Oleate, bbls.....lb.	.17½	.18	.18	.17½
.....	.10½	.08½	.09	Oxide Litharge, 500 lb bbls..lb.	.....	.08½	.08½	.08½
.05½	.11½	.09½	.10	Red, 500 lb bbls wks.....lb.	.....	.09½	.09½	09½
.05½	.09½	.09	.09½	White, 500 lb bbls wks...lb.	.....	.09	.09	.09
.05	.09	.08½	.08½	Sulfate, 500 lb bbls wk...lb.	.....	.08½	.08½	.08½
.....	4.50	4.50	4.50	Lime, ground stone bags....ton	.....	4.50	4.50	4.50
.....	1.05	1 05	1.05	Live, 325 lb bbls wks..100 lb.	.....	1.05	1.05	1.05
				Lime Salts, see Calcium Salts				
1918	.15	.15	.15	Lime-Sulfur soln bbls.....gal.	.15	.17	.17	.15
				Lithopone, 400 lb bbls 1c-1 wks				
.03½	.06½	.06½	.06½	.....lb.	.....	.06½	.06½	.06½
.05	.08½	.08½	.08½	Logwood, 51°, 600 lb bbls.....lb.	.08½	.08½	.08½	.08½
.01½	.03	.03	.03	Chips, 150 lb bags.....lb.	.03	.03½	.03½	.03
.06	.12	.12	.12	Solid, 50 lb boxes.....lb.	.....	.12½	.12½	.12½
15.00	26.00	26.00	26.00	Sticks.....ton	26.00	27.00	27.00	26.00
.....	.07½	.07½	.07½	Lower grades.....lb.	.07½	.08	.08	.07½
.12	.30	.30	.30	Madder, Dutch.....lb.‡	.....	.30	.30	.30
30.00	48.00	48 00	48.00	Magnesite, calc, 500 lb bbl..ton	48.00	50.00	50.00	48.00

Magnesium

				Magnesium Carb, tech, 70 lb				
1918	.06½	.06	.06	bags NY.....lb.	.06	.06½	.06½	.06
				Chloride flake, 375 lb drs c-1				
.....	37.00	37.00	37.00	wks.....ton	.....	37.00	37.00	37.00
.....	33.00	33.00	33.00	Imported shipment...ton	.....	33.00	33.00	33.00
.....	31.00	31.00	31.00	Fused, imp, 900 lb bbls NY ton	.....	31.00	31.00	31.00
				Fluosilicate, crys, 400 lb bbls				
.....	.10	.10	.10	wks.....lb.	.10	.10½	.10½	.10
				Oxide, USP, light, 100 lb bbls				
.....	.42	.42	.42	.....lb.	.....	.42	.42	.42
.....	.50	.50	50	Heavy, 250 lb bbls.....lb.	.....	.50	.50	.50
.....	.12½	.09½	.11½	Silicofluoride, bbls.....lb.	.09½	.10½	.10½	.09½
.....	.23	.23	.23	Stearate, bbls.....lb.	.23	.25	.25	.23
				Manganese Borate, 30%, 200 lb				
.20	.24	.24	.24	bbls.....lb.	.....	.24	.24	.24
.06	.08	.08	.08	Chloride, 600 lb casks.....lb.	.08	.08½	.08½	.08
.....	.05	.04½	.04½	Dioxide, tech (peroxide) drs.lb.				
				Ore, powdered or granular	.35	.40	.50	.35
.....	.03	.03	.03	75-80%, bbls.....lb.	.03	.03½	.03½	.03
.....	.04	.04	.04	80-85%, bbls.....lb.	.04	.04½	.04½	.04
.....	.05	.05	.05	85-88%, bbls.....lb.	.05	.05½	.05½	.05
.....	.07	.07	.07	Sulfate, 550 lb drs NY.....lb.	.07	.07½	.07½	.07
.....	.03½	.03½	.03½	Mangrove 55%, 400 lb bbls...lb.	.03½	Nom.	Nom.	.03½
.....	39.00	34.00	37.54	Bark, African.....ton	45.00	45.00	45.00	40.00
8.00	10.00	10.00	10.00	Marble Flour, bulk.....ton	10.00	12.00	12.00	10.00
1916	129.00	99.00	119.09	Mercury metal.....75 lb flask	121.00	122.00	127.50	121.00
1918	.72	.72	.72	Meta-nitro-aniline .....lb.	.72	.74	.74	.72
				Meta-nitro-para-toluidine 200 lb				
1918	1.70	1.70	1.70	bbls.....lb.	1.70	1.80	1.80	1.70
				Meta-phenylene-diamine 300 lb				
1918	.90	.90	.90	bbls.....lb.	.90	.94	.94	.90
				Meta-toluene-diamine, 300 lb				
1918	.72	.72	.72	bbls.....lb.	.72	.74	.74	.72
.4	.....	.....	.....	Methanol, (Wood Alcohol), drs				
.45	.80	.55	.69	95%.....gal.	.52	.57	.55	.52
.50	.87	.57	.74½	97%, drums 1c-1.....gal.	.54	.57	.57	.54
.....	.....	.....	.....	Pure, drums 1c-1.....gal.	.48	.50	.58	.48
.....	.....	.....	.....	Synthetic, drums 1c-1.....gal.	.48	.50	58	.48
.....	.80	.75	.78	Denat. grd. tanks.....gal.	.45	.47	.75	.45
.....	.95	.95	.95	Methyl Acetate, drums.....gal.	.....	.95	.95	.95
.....	.88	.75	.66	Acetone, 100 gal drums...gal.	.75	.80	.80	.75
.....	1.00	.85	.92½	Anthraquinone, kegs.....lb.	.85	.95	.95	.85
.....	.55	.55	.55	Chloride, 90 lb cyl.....gal.	.55	.60	.60	.55
.....	.03½	.03½	.03½	Mica, dry grd. bags wks.....lb.	65.00	80.00	80.00	65.00
.....	.05½	.05½	.05½	Wet, ground, bags wks.....lb.	110.00	115.00	115.00	110.00
.....	3.00	3.00	3.00	Michler's Ketone, kegs.....lb.	.10	.10½	.10½	.10
				Monochlorobenzene, drums see, Chlorobenzene, mono.....lb.				
.....	.70	.70	.70	Monoethylorthotoluidin, drs..lb.	.70	.75	.75	.70
				Monomethylaniline, 900 lb dr				
1918	1.05	1.05	1.05	.....lb.	.....	1.05	1.05	1.05
				Monomethylparaminosulfate 100				
.....	3.95	3.95	3.95	lb drums.....lb.	3.95	4.20	4.20	3.95
.06¼	.06½	.06½	.06½	Montan Wax, crude, bags....lb.	.06½	.07	.07	.06½
.....	.04	.04	.04	Myrobalans 25%, liq bbls.....lb.	.04½	.04½	.04½	.04½
.....	.08	.08	.08	50% Solid, 50 lb boxes.....lb.	.08	.08½	.08½	.08
27.00	43.50	41.00	42.00	J 1 bags.....ton	.....	42.50	50.00	42.50
27.00	37.00	23.50	35.24	J 2 bags.....ton	.....	34.50	40.00	34.50
27.00	37.00	30.00	36.62	R 2 bags.....ton	.....	34.50	40.00	34.50
				Naphtha, v. m. & p. (deodorized)				
.10	.21	.18	.19½	bbls.....gal.	.....	.18	.18	.18

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PITTSBURGH, PA. U. S. A.

Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Mar. 1928 67.8c

Mercury — Following attempts of factors in Spain and Italy to advance the price at the mines and the subsequent boosting of the price in London to 22 pounds Sterling, this market was advanced in sympathy during the month until reaching the level of $124.00 a flask at which it is now quoted for good-sized parcels. At this figure little, if any, business is passing, though there are sales in one to five flasks lots at $124.75 @ $125.00.

Methyl Acetone — While the market cannot be characterized as brisk, producers are experiencing a demand which is considered satisfactory for this season. Prices are named at 75c @ 80c gal. and most of the business is passing at these levels.

Myrobalans — Recent arrivals from India adding to available supplies, combined with the fact that consumption had been curtailed by high prices, led to lower prices in all grades. J1 has declined to $42.50 per ton, while J2 and R2 are now at $34.50 per ton, declines of $7.50 per ton and $2.50 per ton respectively, since last quoted.

Nitrogenous Material — Has been in heavy demand with supplies very scarce on spot. This has lead to a 40c per unit increase since last quoted, the price now being at $4.00 per unit.

Paris Green — Producers have been very busy in an effort to keep up with the demand. Has been increasingly active during the past month and prices have been advanced. One hundred pound kegs are now quoted at 25c lb. and 250 lb. kegs at 23c lb. in a firm and steady market.

Rosin — The tone in general has been firm during the month. A certain falling off in business, however, soon after the last report was made here, lead to some decline in prices. Consequently, despite favorable conditions existing for the greater part of the month, prices are somewhat lower than when last quoted. Stocks on hand compare favorably with those of a year ago, while production this year has been heavier. This indicates, in general, that business has been good. It is expected that prices will about hold their present level, except during the early summer months.

Shellac — All grades except garnet have advanced during the month. Bone dry and TN are both 2c lb. higher in price than when last quoted, while superfine has advanced 1c lb. This is said to be due to a shortage of supplies in the spot market. Dealers explain the shortage by the fact that consumers failed to anticipate their wants in hopes of further decline in prices, and thus exhausted spot supplies by hand-to-mouth buying. It is expected that the market will be strong

1914 July	1927 High	1927 Low	1927 Aver.		Current Market	1928 High	1928 Low
				Naphthalene balls, 250 lb bbls wks.....lb.	.....	.05½	.06	.05½
.02½	.06	.05½	.05¾	Crushed, chipped bgs wks..lb.	.....	.04½	.04½	.04½
.....	.04½	.04½	.04½	Flakes, 175 lb bbls wks.....lb.	.....	.05	.05	.05
.02½	.05	.04½	.04¾	Nickel Chloride, bbls kegs....lb.	.21	.24	.24	.21
.....	.21	.21	.21	Oxide, 100 lb kegs NY.....lb.	.35	.38	.38	.35
1918	.35	.35	.35	Salt dbl, 400 lb bbls NY.....lb.	.09	.09¼	.09¼	.09
1918	.09	.08½	.08¾	Single, 400 lb bbls NY.....lb.	.08¼	.09	.09	.08¾
1918	.08¼	.08	.08¼	Nicotine, free 40%, 8 lb tins, cases.....lb.	1.25	1.30	1.30	1.25
.....	1.25	1.10	1.24	Sulfate, 10 lb tins.....lb.	1.10	1.15	1.15	1.10
.....	1.10	1.10	1.10	Nitre Cake, 500 lb bbls.....ton	13.00	14.00	14.00	13.00
.....	13.00	13.00	13.00	Nitrobenzene, redistilled, 1000 lb drs wks.....lb.	.10¼	.10½	.10½	.10¼
				Nitrocellulose, regular drums wks.....lb.	.40	Nom.	Nom.	.40
.06½	.10¼	.09½	.09½	Low viscosity (soln only) Grade 1 drums, wks.....lb.	.55	Nom.	Nom.	.55
.....	.40	.40	.40	Grade 2 drums, wks.....lb.	.50	Nom.	Nom.	.50
.....	.55	.55	.55	Nitrogenous Material, bulk..unit	.....	4.00	4.00	3.35
.....	.50	.50	.50	Nitronaphthalene, 550 lb bbls.lb.	.....	.25	.25	.25
3.05	3.60	3.35	3.53	Nitrotoluene, 1000 lb drs wks.lb.	.14	.15	.15	.14
1918	.25	.25	.25	Nutgalls Aleppy, bags.....lb.	.25	Nom.	Nom.	.25
1918	.14	.14	.14	Chinese, bags.....lb	.17	.18	.18	.17
.16	.25	.25	.25	Powdered, bags.....lb	.22	.24	.24	.22
.15	.17	.17	.17	Oak, tanks, wks.....lb	....	.03½	.03½	.03½
.....	.22	.22	.22	23-25% liq., 600 lb bbl wk .lb.	.04	.04½	.04½	.04
.08	.03½	.03½	.03½	Oak Bark, ground.....ton	45.00	50.00	50.00	45.00
.08	.04	.04	.04	Whole.....ton	20.00	23.00	23.00	20.00
.....	45.00	45.00	45.00	Orange-Mineral, 1100 lb casks NY.....lb.	.11½	12½	.13½	.13
.....	20.00	20.00	20.00	Orthoaminophenol, 50 lb kgs..lb.	2.20	2.25	2.25	2.20
.07½	.14½	.13	.13½	Orthoanisidine, 100 lb drs....lb.	2.35	2.50	2.50	2.35
.....	2.20	2.20	2.20	Orthochlorophenol, drums....lb.	.50	.65	.65	.50
.....	2.50	2.35	2.36½	Orthocresol, drums.....lb.	.18	.28	.28	.18
.....	.50	.50	.50	Orthodichlorobenzene, 1000 lb drums.....lb	.06	.07	.07	.06
.....	.18	.18	.18	Orthonitrochlorobenzene, 1200 lb drs wks.....lb.	.32	.35	.35	.32
1918	.06	.06	.06	Orthonitrotoluene, 1000 lb drs wks.....lb.	.17	.18	.18	.17
1918	.32	.32	.32	Orthonitrophenol, 350 lb dr...lb.	.85	.90	.90	.85
1918	.13	.13	.13	Orthotoluidine, 350 lb bbl 1c-1.lb.	.29	.31	.31	.29
1918	.85	.85	.85	Orthonitroparachlorphenol, tins .....lb.	.70	.75	.75	.70
1918	.29	.25	.28	Osage Orange, crystals.....lb.	.16	.17	.17	.16
				51 deg. liquid.....lb.	.07	.07½	.07	.07
1918	.70	.70	.70	Powdered, 100 lb bags.....lb.	.14¼	.15	.15	.14½
.....	.16	.16	.16	Paraffin, refd, 200 lb cs slabs 123-127 deg. M. P.....lb.	.06½	.06¾	.06¾	.06½
1918	.07	.07	.07	128-132 deg. M.P.....lb.	.07¼	.07¾	.07¾	.07½
.....	.14½	.14½	.14½	133-137 deg. M.P.....lb.	.08	.08½	.08½	.08
				138-140 deg. M.P.....lb.	.08¼	.10	.10	.08¼
.04½	.06½	.06½	.06½	Para Aldehyde, 110-55 gal drs.lb.	.26	.28	.28	.26
.05¼	.07¼	.07½	.07½	Aminoacetanilid, 100 lb bg.lb.	1.00	1.05	1.05	1.00
.06¼	.08	.08	.08	Aminohydrochloride, 100 lb kegs .....lb.	1.25	1.30	1.30	1.25
1918	.08¼	.08¼	.08¾	Aminophenol, 100 lb kegs...lb.	.....	1.15	1.15	1.15
.....	.29	.26	.26½	Chlorophenol, drums.....lb.	.50	.65	.65	.50
1918	1.00	1.00	1.00	Coumarone, 330 lb drums..lb.	.....	.....	.....	.....
				Cymene, refd, 110 gal dr...gal.	2.25	2.50	2.50	2.25
.....	1.25	1.25	1.25	Dichlorobenzene, 150 lb bbls wks.....lb.	.17	.20	.20	.17
.....	.15	.15	.15	Nitroacetanilid, 300 lb bbls.lb.	.50	.55	.55	.50
.....	.50	.50	.50	Nitroaniline, 300 lb bbls wks .....lb.	.48	.49	.49	.48
.....	.12	.12	.12	Nitrochlorobenzene, 1200 lb drs wks.....lb.	.....	.32	.32	.32
.....	2.25	2.25	2.25	Nitro-orthotoluidine, 300 lb bbls.....lb.	2.75	2.85	2.85	2.75
				Nitrophenol, 185 lb bbls....lb.	.50	.55	.55	.50
1918	1.00	1.00	1.00	Nitrosodimethylaniline, 120 lb bbls.....lb.	.92	.94	.94	.92
1918	1.25	1.25	1.25	Nitrotoluene, 350 lb bbls...lb.	.....	.30	.30	.30
.....	.15	.15	.15	Phenylenediamine, 350 lb bbls .....lb.	1.15	1.20	1.20	1.15
.....	.50	.50	.50	Toluenesulfonamide, 175 lb bbls.....lb.	.40	.41	.41	.40
.....	.12	.12	.12	Toluenesulfonchloride, 410 lb bbls wks.....lb.	.20	.22	.22	.20
.....	2.25	2.25	2.25	Toluidine, 350 lb bbls wk...lb.	.40	.42	.42	.40
				Paris Green, Arsenic Basis 100 lb kegs.....lb.	.....	.25	.25	.20
1918	.17	.17	.17	250 lb kegs.....lb.	.....	.23	.23	.17
1918	.53	.50	.50½	Persian Berry Ext., bbls.....lb.	.....	.....	.....	.....
				Petrolatum, Green, 300 lb bbl.lb.	.02½	.03	.03	.02½
1917	.52	.52	.52	Phenol, 250-100 lb drums.....lb.	.17	.20	.20	.17
.....	.32	.32	.32	Phenyl - Alpha - Naphthylamine, 100 lb kegs.....lb.	.....	1.35	1.35	1.35
				Phosphate Acid, 16% blk wks.ton	.....	9.00	9.00	9.00
1918	2.75	2.75	2.75	Phosphate Rock, f.o.b. mines	.....	.....	.....	.....
1918	.50	.50	.50	Florida Pebble, 68% basis..ton	3.00	3.15	3.15	3.00
				70% basis.....ton	3.50	3.65	3.65	3.50
.....	.92	.92	.92	72% basis.....ton	4.00	4.15	4.15	4.00
1918	.30	.25	.26	75-74% basis.....ton	.....	5.00	5.00	5.00
				75% basis.....ton	.....	5.75	5.75	5.75
1918	1.20	1.15	1.18	77-76% basis.....ton	.....	6.25	6.25	6.25
				Tennessee, 72% basis.....ton	.....	5.00	5.00	5.00
.....	.40	.40	.40	Phosphorous Oxychloride 175 lb cyl.....lb.	.35	.40	.40	.35
				Red, 110 lb cases.....lb.	.60	.65	.65	.60
.11	.21	.21	.21	Yellow, 110 lb cases wks.lb.	.....	.32	.32	.32
.....	.19	.19	.19	Sesquisulfide, 100 lb cs.....lb.	.....	.46	.46	.46
.12	.25	.25	.25	Trichloride, cylinders.....lb.	.....	.....	.....	.....
.....	.02½	.02½	.02½	Phthalic Anhydride, 100 lb bbls wks.....lb.	.18	.20	.20	.18
1918	.18	.16	.17					
1918	1.35	1.28	1.35					
45.00	9.00	8.50	8.75					
3.00	3.00	3.00	3.00					
2.00	3.50	3.50	3.50					
.....	4.00	3.85	3.96					
4.00	5.35	5.00	5.09					
4.00	5.75	5.60	5.71½					
5.75	6.25	6.00	6.19					
4.50	5.50	5.00	5.12½					
.....	.35	.35	.35					
.45	.65	.60	.62					
35	.32	.32	.32					
...	.46	.46	.46					
....	.35	.35	.35					
.....	.18	.18	.18					

THE GRASSELLI CHEMICAL COMPANY ZINC OXIDE EAST CHICAGO, IND.

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Prices Current and Comment

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and prices high for the next sixty days as the new crop will not be here until June.

Soda Ash — One leading producer is experiencing a very good demand both on contract withdrawals and spot business. Others report a fairly good interest with little change in the situation over the month past. Fifty-eight per cent. dense ash is named at $1.40 100 lbs. at the works.

Sodium Chlorate — Domestic manufacturers continue to take practically all of the business at 5¾c lb. to which level the market was dropped early last month to eliminate competition from an importer, who had been shading the openly quoted New York price of 6¼c lb. At the former price the market is steady and about the usual tonnage is passing hands.

Sodium Hyposulfite — The demand from the tanning trade has been better for the technical grade. This increase in business has been noticeable since the tanners have shown an improvement in their own business. Domestic manufacturers quote $2.40 100 lbs. on good sized parcels, though this level might be shaded a bit. Photographic crystals are moving quite well with the market well maintained at the quoted levels.

Sodium Nitrate — During the past month importers have raised the price to $2.32½ per 100 lbs. The market, while not very active, has remained firm, due to the fact that considerable future deliveries have been anticipated.

Solvent Naphtha — Has shown no particular change over the month. Producers are experiencing an average demand and there has not been any revision in the schedule price of 35c gal.

Starch — During the past month, due to high prices of corn, quotations on powdered and pearl have set a new high for the year. The total advance for the month has been 40c per 100 lbs. Other starches have remained steady and unchanged in price.

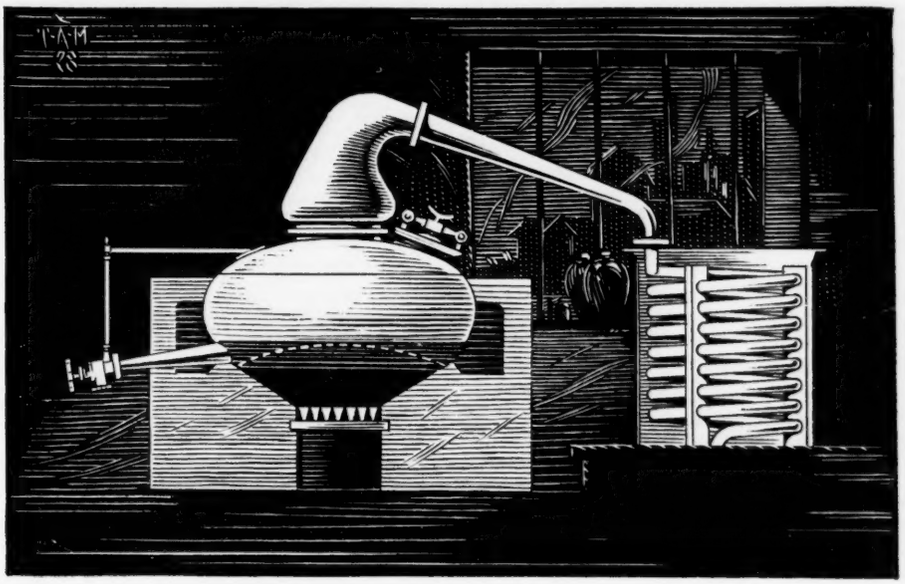
Tankage — There has been but little demand here and, in consequence, New York prices have declined to $4.75 and 10 per unit. South American quotations are also at that figure, which represents, in this case, even a greater decline, due to the fact that the season will soon be over.

Tin Salts — The schedule prevailing during the first 10 days of April was at 16c lb. for bichloride; 39½c lb. for crystals and 33½c lb. for tetrachloride. This represents an advance of ½c lb. on all these grades for the month, based on the advancing metal market.

Toluene — Distributors are having no trouble in placing the entire output of the producers and the market is very firm at 35c gal. in all quarters. Consuming de-

1914 July	1927 High	1927 Low	1927 Aver.		Current Market		1928 High	1928 Low
.....	40.00	37.00	38 50	Pigments Metallic, Red or brown bags, bbls, Pa. wks....ton	37.00	45.00	45.00	37.00
1918	.63	.63	.63	Pine Oil, 55 gal drums or bbls Destructive dist.....lb.	.63	.64	.64	.63
.....	8.00	8.00	8.00	Prime bbls.....bbl.	8.00	10.60	10.60	8.00
.34	.70	.66	.69	Steam dist. bbls.....gal.	.....	.70	.70	.70
37.50	40.00	40.00	40.00	Pitch Hardwood, ... wks.....ton	40.00	45.00	45.00	40.00
1.50	3.30	3.30	3.30	Plaster Paris, tech, 250 lb bbls .....bbl.	.....	3.30	3.30	3.30
				Potash				
.04½	.07½	.07½	.07½	Potash, Caustic, wks.....lb.	.....	.07½	.07½	.07½
.....	.07½	.07½	.07½	Imported casks c-1.....lb.	.....	.07½	.07½	.07½
8.36	9.00	9.00	9.00	Potash Salts, Rough Kainit 12.4% basis bulk.....ton	.....	9.00	9.00	9.00
.....	9.50	9.50	9.50	14% basis.....ton	.....	9.50	9.50	9.50
13.58	12.40	12.40	12.40	Manure Salts..... 20% basis bulk.....ton	.....	12.40	12.40	12.40
.....	18.75	18.75	18.75	30% basis bulk .....ton	.....	18.75	18.75	18.75
39.07	36.40	36.40	36.40	Potassium Muriate, 80% basis bags.....ton	.....	36.40	36.40	36.40
25.04	27.00	27.00	27.00	Pot. & Mag. Sulfate, 40% basis bags.....ton	.....	27.00	27.00	27.00
47.57	47 30	47.30	47.30	Potassium Sulfate, 90% basis bags.....ton	.....	47.30	47.30	47.30
.08	.09	.09	.09	Potassium Bicarbonate, USP, 320 lb bbls.....lb.	.09	.09½	.09½	.09
.06¾	.08¼	.08	.08¼	Bichromate Crystals, 725 lb casks.....lb.	.09	.09¼	.09½	.08½
.....	.12	.11	.11	Powd., 725 lb cks wks....lb.	.12¼	.13	.12¼	.12
.....	.16	.16	.16	Binoxiate, 300 lb bbls.....lb..	.16	.17	.17	.16
.....	.30	.30	.30	Bisulfate, 100 lb kegs.....lb.	.....	.30	.30	.30
.03½	.05½	.05½	.05½	Carbonate, 80-85% calc. 800 lb casks.....lb.	.05½	.05½	.05½	.05½
.07¼	.08½	.08½	.08½	Chlorate crystals, powder 112 lb keg wks.....lb.	.08½	.09	.09	.08½
.....	.08¾	.08¼	.08½	Potassium Chlorate, Imp 112 lb kegs NY.....lb.	.08½	.08½	.08½	.08½
	.05¼	.05¼	.05¼	Chloride, crys bbls.....lb.	.05½	.05½	.05½	.05½
.....	.27	.27	.27	Chromate, kegs.....lb.	.27	.28	.28	.27
.20	.55	.55	.55	Cyanide, 110 lb. cases .....lb.	.55	.57½	.57½	.55
.13	.11½	.11½	.11½	Metabisulfite, 300 lb. bbl..lb.	.11½	.12	.12	.11½
.14	.16	.16	.16	Oxalate, Neut. 225 lb. bbls.lb.	.16	.17	.17	.16
.....	.11	.11	.11	Perchlorate, casks wks.....lb.	.11	.12	.12	.11
.09½	.15½	.14½	.14½	Permanganate, USP, crys 500 & 100 lb drs wks.....lb.	.15½	.15½	.15½	.15½
.21	.39	.37½	.38	Prussiate, red, 112 lb keg...lb.	.37	.38	.38	.37
.12½	.18	.18	.18	Yellow, 500 lb casks.....lb.	.18	.18½	.18½	.18
.....	.51	.51	.51	Tartrate Neut, 100 lb keg...lb.	.....	.51	.51	.51
.....	.25	.25	.25	Titanium Oxalate, 200 lb bbls .....lb.	.....	.25	.25	25
.....	.04	.04	.04	Pumice Stone, lump bags.....lb.	.04	.05	.05	.04
.04½	.04½	.04½	.04½	250 lb bbls.....lb.	.04½	.06	.06	.04½
.01½	.02½	.02½	.02½	Powdered, 350 lb bags.....lb.	.02½	.03	.03	.02½
2.65	3.75	3.75	3.75	Putty, commercial, tubs..100 lb.	.....	.03½	.03½	.03½
4.25	5.50	5.50	5.50	Linseed Oil, kegs.....100 lb.	.....	.05½	.05½	.05½
.....	3.00	1.50	.94	Pyridine, 50 gal drums.....gal.	.....	1.50	1.50	1.50
.10½	.13	.12	.12½	Pyrites, Spanish cif Atlantic ports bulk.....unit	.13	.13¾	.13¾	.13
.02¼	.03	.03	.03	Quebracho, 35% liquid tks....lb.	.03	.03½	.03½	.03
.....	.03½	.03½	.03½	450 lb bbls c-1.....lb.	.03½	.04	.04	.03½
.....	.04	.04	.04	35% Bleaching, 450 lb bbl..lb.	.04	.05	.05	.04
.04¼	.05	.04¼	.04¼	Solid, 63%, 100 lb bales cif.lb.	.05¼	.05½	.05½	.05
.....	.05	.05	.05	Clarified, 64%, bales.....lb.	.....	.05½	.05½	.05
.01¼	.06½	.06½	.06½	Quercitron, 51 deg liquid 450 lb bbls.....lb.	.05½	.06	.06	.05½
.02¼	.10	.10	.10	Solid, 100 lb boxes.....lb.	.10	.13	.13	.10
22.00	14.00	14.00	14.00	Bark, Rough.....ton	.....	14.00	14.00	14.00
.....	34.00	34.00	34.00	Ground.....ton	34.00	35.00	35.00	34.00
1918	.45	.45	.45	R Salt, 250 lb bbls wks.....lb.	.45	.46	.46	.45
.03	.18	.18	.18	Red Sanders Wood, grd bbls..lb.	.....	.....	.....	.....
1918	1.25	1.25	1.25	Resorcinol Tech, cans.....lb.	1.25	1.35	1.35	1.25
.27	.67	.57	.59	Rosin Oil, 50 gal bbls, first run .....gal.	.....	.57	.57	.57
.38	.72	.62	.64	Second run.....gal.	.....	.62	.62	.62
4.37½	13.00	8.50	10.08½	Rosins, 600 lb bbls 280 lb...unit B.....	.....	8.85	9.10	8.85
4.42½	13.00	8.50	10.17	D.....	.....	8.90	9.65	8.90
4.42½	13.15	8.50	10.23	E.....	.....	9.50	9.75	9.40
4.47½	13.20	8.50	10.49	F.....	.....	9.65	9.95	9.45
4.47½	13.25	8.50	10.58½	G.....	.....	9.80	10.00	9.55
4.47½	13.30	8.50	10.65	H.....	.....	10.05	10.05	9.50
4.55	13.35	8.55	10.79½	I.....	.....	10.05	10.10	9.60
4.49½	14.80	8.65	11.05	K.....	.....	10.10	10.15	9.70
5.47½	15.00	8.80	11.15½	M.....	.....	10.10	10.30	9.85
6.12½	15.85	9.15	11.62	N.....	.....	10.65	11.00	10.45
6.67½	16.60	10.50	12.58	WG.....	.....	10.85	11.65	10.85
6.92½	18.55	12 00	14.34	WW.....	.....	11.50	12.65	11.50
.....	24.00	24.00	24.00	Rotten Stone, bags mines....ton	24.00	30.00	30.00	24.00
.....	.07	.07	.07	Lump, imported, bbls. ....lb.	.07	.08	.08	.07
.05½	.09	.09	.09	Selected bbls.....lb.	.09	.12	.12	.09
.02½	.02	.02	.02	Powdered, bbls.....lb.	.02	.05	.05	.02
.02¾	.04½	.04½	.04½	Sago Flour, 150 lb bags.....lb.	.04½	.05	.05	.04½
.60	.90	.90	.90	Sal Soda, bbls wks.....100 lb.	.....	.....	.....	.....
11.00	19.00	19.00	19.00	Salt Cake, 94-96% c-1 wks...ton	19.00	20.00	20.00	19.00
8.00	15.00	15.00	15.00	White, 87% wks.....ton	15.00	17.00	17.00	15.00
.04½	.06½	.06½	.06½	Saltpetre, double refd granular 450-500 lb bbls.....lb.	.06½	.06½	.06½	.06½
.....	.01½	.01½	.01½	Satin, White, 500 lb bbls.....lb.	.....	.01½	.01½	.01½
.18½	.66	.47	.57	Shellac Bone dry bbls.....lb.	.51	.52	.61	.49
.15	.57	.41	.48	Garnet, bags.....lb.	.46	.47	.55	.46
.14½	.65	.40	.52½	Superfine, bags.....lb.	.48	.49	.58	47
.15½	.37	.57	.49	T. N. bags.....lb.	.44	.45	.55	.42
1918	.50	.50	.50	Schaeffer's Salt, kegs.....lb.	.53	.57	.57	.53

ALCOHOL THROUGH THE AGES , NUMBER XIII



WHEN POT OR PATENT WAS THE QUESTION

During the early years of the present century a question arose in England regarding the proper nomenclature of certain potable spirits. The old Pot Still, after three hundred years of popularity, was in general use in Scotland, whereas the Patent Still was coming into favor in other parts of Britain.

A Royal Commission heard the complaints of the Pot Still users, who maintained that unless made in a Pot Still the spirit could not be called "Scotch."

The Commission ruled that "Scotch whisky is whisky distilled in Scotland"—regardless of the method used. Score one for progress.

The Pot Still, as illustrated, is an evolution of the most primitive types, and is important in any history of distillation, but it could not serve the needs of Industry in supplying commercial alcohols.

, , , ,

The old Pot Still with the retort head was the progenitor of the continuous Stills in use in the plants of the Kentucky Alcohol Corporation, whose equipment is recognized as being the most modern in the Alcohol Industry. Kentucky representatives are in position to discuss your Alcohol needs—for scientific or industrial purposes—any formula, in any quantity.

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General Brokerage Corp.

Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1917 71.7c - Mar. 1928 67.8c

mand is very healthy and no change in the position is looked for during the coming month.

Turpentine — Although the market has been fairly firm since last reported, the beginning of April has been thus far disappointing, as the market has been comparatively slow. Consequently, spirits have declined somewhat in price, now being quoted at 58¾c @ 63¾c gal. Wood distilled, on the contrary, is higher, at 57c % 59c gal.

Valonia Beard — Consumption is curtailed by prevailing high prices which will probably continue as no supplies are available and no offers are being made. The situation is further complicated by the fact that Smyrna, the chief source of supply was almost wholly destroyed by an earthquake April 2.

Vermillion — English has advanced 10c lb. during the month due to prevailing higher prices of quicksilver.

Zinc Ammonium Chloride — There has been evidence of shading from the schedule price of the domestic manufacturers which is named at $5.70 100 lbs. This is particularly true in the Philadelphia territory where domestic makers have been forced to cut to $5.50 100 lbs. and in one instance below this figure to eliminate imported competition. Sales have not been very brisk during the month just past, and the market is characterized by a generally easy movement.

OILS AND FATS

Chinawood Oil — During the past month, the price tendency has been downward, so that both barrels spot and Coast tanks are ¼c lb. lower than when last reported. About the middle of last month, however, both prices were 1c lb. lower. Consequently the quoted figures represent something of a recovery from lower prices which have existed during the month. There have been but few sales reported during the month and consumers appear well taken care of.

Coconut Oil — There has been but little variation in prices since last reported. The market has been spotty but present indications seem a bit firmer. Ceylon in tanks at New York has advanced ⅛c @ ¼c lb.; tanks of Manila, both at the Coast and at New York have advanced ⅛ c lb. With these exceptions prices continue the same as when last quoted.

Cod Oil — Has become very scarce, with but little available for spot delivery. In consequence, the barrel price has increased 2c gal. during the past month, now being quoted at 67c gal.

Corn Oil — When last reported, this oil had not followed the prevailing high

1914 July	1927 High	1927 Low	1927 Aver.		Current Market		1928 High	1928 Low
.....	6.00	6.00	6.00	Silica, Crude, bulk mines....ton	8.00	11.00	11.00	8.00
.....	15.00	15.00	15.00	Refined, floated bags.....ton	22.00	30.00	30.00	22.00
.....	32.00	32.00	32.00	Air floated bags.....ton	.....	.....	.....	.....
.....	55.00	55.00	55.00	Extra floated bags.....ton	32.00	40.00	40.00	32.00
10.00	15.00	15.00	15.00	Soapstone, Powdered, bags f.o.b. mines.....ton	15.00	22.00	22.00	15.00
				Soda				
.67½	1.32½	1.32½	1.32½	Soda Ash, 58% dense, bags c-1 wks.....100 lb.	.....	1.40	1.40	1.40
.57½	2.14	2.04	2.12	58% light, bags del NY..100 lb.	2.04	2.29	2.29	2.04
.....	1.32½	1.32½	1.32½	Contract, bags c-1 wks.100 lb.	.....	1.32½	1.32½	1.32½
2.50	4.16	4.06	4.14½	Soda Caustic, 76% grnd & flake drums del NY.....100 lb.	4.16	4.21	4.21	4.16
.....	3.76	3.66	3.74½	76% solid drs del NY...100 lb.	3.76	3.91	3.91	3.76
.....	3.00	3.00	3.00	Contract, c-1 wks.....100 lb.	.....	3.00	3.00	3.00
.03½	.04½	.04½	.04½	Sodium Acetate, crystals, 450 lb bbls wks.....lb.	.04½	.05	.05	.04½
.....	.19	.18	.18½	Arsenate, drums.. .....lb.	.....	.....	.....	.....
.....	1.00	1.00	1.00	Arsenite, drums.....gal.	.....	.....	.....	.....
1.00	2.41	2.41	2.41	Bicarb., 400 lb bbl NY..100 lb.	.....	2.41	2.41	2.41
.04½	.06½	.06½	.06½	Bichromate, 500 lb cks wks.lb.	.07	.07½	.07	.06½
.02½	.08½	.08½	.08½	Bisulfite, 500 lb bbl wks....lb.	.....	.04	.04	.04
.60	1.30	1.30	1.30	Carb. 350 lb bbls NY...100 lb.	1.30	1.35	1.35	1.30
.07½	.06½	.06½	.06½	Chlorate, 112 lb kegs wks...lb	.05½	06½	.06½	.05½
.....	12.00	12.00	12.00	Chloride, technical.....ton	12.00	13.00	13.00	12.00
.22	.20	.20	.20	Cyanide, 96-98%, 100 & 250 lb drums wks.....lb.	.....	.20	.20	.20
1918	.08½	.08½	.08½	Fluoride, 300 lb bbls wks...lb.	.08½	.09	.09	.08½
.....	.22	.22	.22	Hydrosulfite, 200 lb bbls f.o.b. wks.....lb.	.22	.24	.24	.22
.....	.05	.05	.05	Hypochloride solution, 100 lb cbys.....lb.	.....	.05	.05	.05
1.40	2.65	2.65	2.65	Hyposulfite, tech, pea crys 375 lb bbls wks....100 lb.	2.65	3.05	3.05	2.65
1.30	2.40	2.40	2.40	Technical, regular crystals 375 lb bbls wks... 100 lb.	2.40	2.65	2.65	2.40
.....	.70	.45	.62	Metanilate, 150 lb bbls.....lb.	.....	.45	.45	.45
.....	.02½	.02½	.02½	Monohydrate, bbls.....lb.	.....	.....	.....	.....
1918	.55	.55	.55	Naphthionate, 300 lb bbl...lb.	.55	.57	.57	.55
2.12½	2.67	2.25	2.52½	Nitrate, 92%, crude, 200 lb bags c-1 NY.....100 lb.	.....	2.32½	2.45	2.30
.05½	.08½	.08	.08	Nitrite, 500 lb bbls spot ...lb.	.08	.08½	.08½	.08
.....	.25	.25	.25	Orthochlorotoluene, sulfonate, 175 lb bbls wks.....lb	.25	.27	.27	.25
.....	.20	.20	.20	Oxalate Neut, 100 lb kegs..lb.	.20	.23	.23	.20
.....	3.90	3.90	3.90	Paratoluene, tri-sodium, tech. 100 lb bbls c-1....100 lb.	.....	3.90	3.90	3.90
.....	.08	.08	.08	Sulfonate, 175 lb bbls....lb.	.08	.09	.09	.08
.19	.21	.21	.21	Perborate, 275 lb bbls.....lb.	.21	.22	.22	.21
2.12½	3.25	3.25	3.25	Phosphate, di-sodium, tech. 550 lb bbls.....100 lb.	3.25	3.55	3.55	3.25
.....	.69	.69	.69	Picramate, 100 lb kegs.....lb.	.69	.72	.72	.69
.08½	.12	.11	.12	Prussiate, Yellow, 350 lb bbl wks.....lb.	.12	.12½	.12½	.12
.....	.13½	.13½	.13½	Pyrophosphate, 100 lb keg..lb.	.13½	.14	.14	.13½
.02	1.20	1.20	1.20	Silicate, 40 deg clear 55 gal drs wks.....100 lb.	1.20	1.45	1.45	1.20
.02	.85	.85	.85	40 deg turbid 55 gal drs wks.....100 lb.	.85	1.10	1.10	.85
.....	.04½	.04½	.04½	Silicofluoride, 450 lb bbls NY .....lb.	.04½	.05	.05	.04½
.....	.48½	.48½	.48½	Stannate, 100 lb drums.....lb.	.48½	.49	.49	.48½
.....	.20	.20	.20	Stearate, bbls.....lb.	.18	.22	.29	.18
.....	.16	.16	.16	Sulfanilate, 400 lb bbls.....lb.	.16	.18	.18	.16
.....	.02½	.02½	.02½	Sulfate Anhyd., 550 lb bbls c-1 wks.....lb.	.02½	.02¾	.02¾	.02½
.01½	.02½	.02½	.02½	Sulfide, 30% crystals, 440 lb bbls wks.....lb.	.02½	.02¾	.02¾	.02½
.....	.03½	.03½	.03½	62% solid, 650 lb drums 1c-1 wks.....lb.	.03½	.04	.04	.03½
.02½	.03½	.03½	.03½	Sulfite, crystals, 400 lb bbls wks.....lb.	.03½	.03½	.03½	.03½
.....	.40	.40	.40	Sulfocyanide, bbls.....lb.	.40	.50	.50	.40
.....	.85	.80	.82½	Tungstate, tech, crystals, kegs .....lb.	.80	.85	.85	.80
1917	.40	.35	.37	Solvent Naphtha, 110 gal drs wks.....gal.	.35	.40	.40	.35
1918	.01½	.01½	.01½	Spruce, 25% liquid, bbls.....lb.	.....	.01½	.01½	.01½
1918	.01	.01	.01	25% liquid, tanks wks.....lb.	.....	.01	.01	.01
.....	.02	.02	.02	50% powd., 100 lb bag wks.lb.	.02	.02½	.02½	.02
.....	3.22	3.07	3.14½	Starch, powd., 140 lb bags .....100 lb.	3.97	4.17	4.17	3.07
1.99	3.12	2.97	3.03	Pearl, 140 lb bags.....100 lb.	3.87	4.07	4.07	2.97
.05½	.06	.04¾	.05½	Potato, 200 lb bags .....lb	.05¾	.06½	.06¾	.05¾
.05½	.06¼	.06¼	.06¼	Imported bags.....lb	.05¾	.06¾	.06¾	.05¾
.05½	.08	.06	.07	Soluble.....lb.	.08	.08½	.08½	.08
.07	.09½	.09	.09½	Rice, 200 lb bbls.....lb.	.09½	.10	.10	.09½
.04½	.06½	.06½	.06½	Wheat, thick bags.....lb.	.06½	.07	.07	.06½
.04½	.09½	.09½	.09½	Thin bags.....lb.	.09½	.10	.10	.09½
1918	.07½	.07½	.07½	Strontium carbonate, 600 lb bbls wks.....lb	.07½	.07½	.07½	.07½
.07½	.08¾	.08	.08	Nitrate, 600 lb bbls NY....lb.	.08¾	.09	.09	.08¾
				Sulfur				
1.85	2.05	.205	2.05	Sulfur Brimstone, broken rock, 250 lb bag c-1.....100 lb.	.....	2.05	2.05	2.05
.....	18.00	18.00	18.00	Crude, f.o.b. mines.... ton	18.00	19.00	19.00	18.00
.....	2.40	2.40	2.40	Flour for dusting 99½%, 100 lb bags c-1 NY.....100 lb.	.....	2.40	2.40	2.40
2.00	2.50	2.50	2.50	Heavy bags c-1.....100 lb.	.....	2.50	2.50	2.50
2.20	3.45	3.45	3.45	Flowers, 100%, 155 lb bbls c-1 NY.....100 lb.	.....	3.45	3.45	3.45
1.85	2.65	2.65	2.65	Roll, bbls 1c-1 NY.....100 lb.	2.65	2.85	2.85	2.65

Prices Current and Comment

Standard Purchasing Power of the Dollar: July 1914 $1.00 - Jan. 1927 68.7c - July 1927 71.7c - Mar. 1928 67.8c

prices in all corn products, due apparently to the fact that cottonseed, at that time, was in an unusually low position. However, with the return of cottonseed, during the past month, to more normal and firm position, corn oil, too, has followed the natural tendency of the market and moved into a stronger position at higher prices. Crude oil in barrels has advanced ¼c lb. during the month, while the tank price has advanced ⅝c lb. The former is now quoted at 11c lb., while the latter is at 9c lb.

Cottonseed Oil — The past month has witnessed a noteworthy improvement in the position of this basic oil with a consequent bracing effect upon the entire oil market. Crude oil at the mills has advanced ⅞c lb. during the month. PSY has advanced ¾c lb. in price since last reported and futures are in a proportionally firmer position.

Grease — Has been very firm with advances in price on both brown and yellow. The former is now at 7¼c lb. and the latter at 6⅞c @ 7c lb. White has remained unchanged at 9½c lb.

Lard Oil — Has been in good demand recently with advances in price for all grades but extra No. 1, since last quoted. Edible has increased ¾c lb. in price, now being quoted at 16c lb.; extra and off prime have increased ¼c lb. in price, now being quoted at 13c lb. and 14c lb. respectively.

Linseed Oil — Quoted prices are the same as when last reported, with five-barrel lots at 10.2 c lb.; barrels at 9.8c lb.; and tanks at 9.0c lb. Although prices have remained unchanged the tendency is now firmer. Whereas there had been considerable shading, the tendency now is to hold the price. This strength has been reinforced by higher prices and firmer conditions in the primary markets.

Menhaden Oil — Is now very scarce with slight but steady demand. The price on extra bleached has advanced to 70c lb.

Neatsfoot Oil — Has been in pretty fair demand in a comparatively steady market. Twenty-degree cold test has declined ¼c lb. during the month now being quoted at 18¼c lb. Extra has remained unchanged at 12c lb. Pure declined ¼c lb. about the middle of last month but moved up again to its present position at 15¾c lb., which is the same as that held when last quoted here.

Oleo Oil — All grades are now from ½c lb. to 1c lb. higher in price than when last quoted, with very active demand, at least during the past two weeks. Previous to that, activity was negligible and prices had declined from ½c lb. to 1c lb. below those quoted here last month. Thus,

1914 July	1927 High	1927 Low	1927 Aver.		Current Market	1928 High	1928 Low
				Sulfur Chloride, red, 700 lb drs wks.....lb.	.05	.05½	.05½	.05
.....	.05	.05	.05	Yellow, 700 lb drs wks.....lb.	.03¾	.04¼	.04¼	.03¾
.....	.03¾	.03¾	.03¾	Sulfur Dioxide, 150 lb cyl....lb.	.08	.08½	.08½	.08
.....	.08	.08	.08	Extra, dry, 100 lb cyl.....lb.	.17	.19	.19	.17
.....	.17	.17	.17	Sulfuryl Chloride, 600 lb dr...lb	.10	.65	.65	.10
.....	.65	.65	.65	Stainless, 600 lb bbls.....lb.	.11	.11½	.11½	.11
.....	.11	.11	.11	Extract, 450 lb bbls.....lb.	.05½	.06	.06	.05½
.....	.05	.05	.05	Sicily Leaves, 100 lb bg...ton	.....	130.00	130.00	130.00
62.00	130.00	130.00	130.00	Ground shipment.....ton	.....	72.00	72.00	72.00
40.00	80.00	72.00	73.75	Virginia, 150 lb bags.....ton	55.00	60.00	60.00	55.00
.....	55.00	55.00	55.00	Talc, Crude, 100 lb bgs NY..ton	12.00	15.00	15.00	12.00
15.00	12.00	12.00	12.00	Refined, 100 lb bgs NY..ton	16.00	18.00	18.00	16.00
15.00	16.00	16.00	16.00	French, 220 lb bags NY...ton	30.00	35.00	35.00	30.00
.....	30.00	30.00	30.00	Refined, white, bags....ton	38.00	45.00	45.00	38.00
35.00	38.00	38.00	38.00	Italian, 220 lb bags NY...ton	40.00	50.00	50.00	40.00
.....	40.00	40.00	40.00	Refined, white, bags....ton	50.00	55.00	55.00	50.00
.....	50.00	50.00	50.00	Tankage Ground NY.....unit	.....	4.75&10	5.10&10	4.75&10
3.50	4.85	4.00	4.41	High grade f.o.b. Chicago.unit	.....	3.90&10	3.90&10	3.90&10
3.10	5.25	3.75	4.29	South American cif.....unit	.....	4.75&10	4.95&10	4.75&10
.....	5.25	4.00	4.38½	Tapioca Flour, high grade bgs.lb.	.04½	.05	.05	.04¾
.02	.04½	.04½	.04½	Medium grade, bags.....lb.	.03½	.04	.04	.03¾
.01¾	.03½	.03½	.03½	Tar Acid Oil, 15%, drums...gal.	.26	.27	.27	.26
.....	.26	.26	.26	25% drums.....gal.	.29	.30	.30	.29
.....	.29	.29	.29	Coke Oven, tanks wks.....lb	.07	.08	.08	.07
.....	.07	.07	.07	Kiln Burnt, bbl.....bbl.	.....	13.50	13.50	13.50
6.50	16.00	13.50	14.87½	Retort, bbls.....bbl.	13.50	15.00	15.00	13.50
6.76	18.50	13.50	15.38½	Terra Alba Amer. No. 1, bags or bbls mills.....100 lb.	1.15	1.75	1.75	1.15
.75	1.15	1.15	1.15	No. 2 bags or bbls...100 lb.	1.50	2.00	2.00	1.50
.60	1.50	1.50	1.50	Imported bags.....100 lb.	.02	.02½	.02½	.02
.80	2.00	2.00	2.00	Tetralene, 50 gal drs wks.....lb.	.....	.20	.20	.20
.....	.20	.20	.20	Thiocarbanilid, 170 lb bbl.....lb.	.22	.24	.24	.22
.....	.22	.22	.22	Tin Bichloride, 50% soln, 100 lb bbls wks.....lb.	.....	.16	.17½	.15¾
.11½	.20½	.17½	.19	Crystals, 500 lb bbls wks...lb.	.....	.39½	.41½	.39
.23	.48	.41½	.45	Metal Straits NY.....lb.	.....	.53½	.58	.51½
.....	.71½	.58	.65	Oxide, 300 lb bbls wks.....lb.	.....	.57½	.75	.57
.36	.75	.70	.71	Tetrachloride, 100 lb drs wks.....lb.	.....	.33½	.35½	.33
.....	.48	.35½	.39	Titanium Oxide, 200 lb bbl...lb.	.....	.40	.40	.40
.....	.40	.40	.40	Pigment, bbls wks.....lb.	.13½	.14	.14	.13½
.....	.13½	.13½	.13½	Toluene, 110 gal drs wks.....lb.	.....	.40	.40	.40
1918	.40	.40	.40	8000 gal tank cars wks.....lb.	.....	.35	.35	.35
.....	.35	.35	.35	Toluidine, 350 lb bbls.....lb.	.90	.94	.94	.90
1918	.90	.90	.90	Mixed, 900 lb drs wks.....lb.	.31	.32	.32	.31
1918	.31	.31	.31	Toner Lithol, red, bbls.....lb.	.85	.90	.90	.85
.....	.85	.85	.85	Para, red, bbls.....lb.	.75	.80	.80	.75
.....	.75	.75	.75	Toluidine.....lb.	1.70	1.75	1.80	1.70
1918	1.75	1.75	1.75	Triacetin, 50 gal drs wks.....lb.	3.60	3.90	3.90	3.60
.....	3.60	3.60	3.60	Tricresyl Phosphate, drs.....lb.	.36	.50	.50	.36
.....	.36	.36	.36	Triphenylguanidine.....lb.	.69	.73	.73	.69
.....	.70	.69	.69	Phosphate, drums.....lb.	.70	.75	.75	.70
.....	.70	.70	.70	Tripoli, 500 lb bbls.....100 lb.	2.50	3.00	3.00	2.50
.....	2.50	2.50	2.50	Turpentine Spirits, bbls.....gal.	.58¼	.63¼	.64½	.58¼
.49	.86	.53½	.65	Wood Steam dist. bbls....gal.	.57	.59	.59	.46
.34	.76	.46	.55	Urea, pure, 112 lb cases.....lb.	.18	.20	.20	.18
.....	.18	.18	.18	Valonia Beard, 42%, tannin bags.....ton	74.00	76.00	76.00	74.00
.....	70.00	66.00	61.52	Cups, 30-31% tannin.....ton	55.00	Nom.	55.00	55.00
.....	49.50	39.00	43.96	Mixture, bark, bags.....ton	63.00	64.00	64.00	63.00
.....	68.00	43.00	48.52	Vermilion, English, kegs.....lb.	1.85	1.90	1.95	1.75
.55	1.95	1.55	1.94¼	Wattle Bark, bags.....ton	58.00	60.00	76.00	58.00
.....	59.00	49.50	53.71	Extract 55%, double bags ex-dock.....lb.	.....	.06½	.06½	.05¾
.....	.05¾	.05¾	.05¾	Whiting, 200 lb bags, c-l wks.....100 lb.	.....	1.25	1.25	1.25
.45	1.25	1.25	1.25	Alba, bags c-l NY.....ton	.....	13.00	13.00	13.00
.....	13.00	13.00	13.00	Gilders, bags c-l NY...100 lb.	.....	1.35	1.35	1.35
.55	1.35	1.35	1.35	Zinc Ammonium Chloride powd., 400 lb bbls.....lb.	.....	5.70	.05¾	5.70
.....	.06½	.06½	.06½	Carbonate Tech, bbls NY..lb.	.09½	.10	.10	.09½
.08½	.09½	.09½	.09½	Chloride Fused, 600 lb drs. wks.....lb.	.....	.06	.06	.06
.04½	.06	.06	.06	Gran., 500 lb bbls wks.....lb.	.06½	.06½	.06½	.06½
.04½	.06½	.06½	.06½	Soln 50%, tanks wks...100 lb.	.....	3.00	3.00	3.00
.....	3.00	3.00	3.00	Cyanide, 100 lb drums.....lb.	.40	.41	.41	.40
.....	.40	.40	.40	Dust, 500 lb bbls c-l wks...lb.	.....	.09	.09	.09
.05½	.09	.09	.09	Metal, high grade slabs c-l NY.....100 lb.	.....	6.07½	6.40	6.07½
.....	7.35	6.40	6.66	Oxide, American bags wks..lb.	.07½	.07½	.07½	.07½
.05½	.07½	07½	.07½	French, 300 lb bbls wks..lb.	.10½	.12½	.12½	.10½
.06½	.10½	.10½	.10½	Sulfate, 400 bbl wks.....lb.	.03½	.03½	.03½	.03½
.02½	.03½	03	.03½	Sulfide, 500 lb bbls.....lb.	.30	.32	.32	.30
.....	.30	.30	.30	Sulfocarbolate, 100 lb keg..lb.	.29	.30	.30	.29
.....	.29	.29	.29	Xylene, 10 deg tanks wks....lb.	.....	.32	.32	.32
.....	.38	32	.37	Commercial, tanks wks....lb.	.30	.32	.32	.30
.....	.36	.30	.35	Xylidine, crude.....lb.	.....	.38	.38	.38
1918	.35	.35	.35	Zirconium Oxide, Nat. kegs..lb.	.02½	.03	.03	.02½
.....	.02½	.02½	.02½	Pure kegs.....lb.	.45	.50	.50	.45
.....	.45	.45	.45	Semi-refined kegs.....lb.	.08	.10	.10	.08
.....	.08½	.08	.08					

Oils and Fats

.08	.14	.13	.13	Castor, No. 1, 400 lb bbls....lb.	.14	.14½	.14½	.14
.08	.14	.12½	.13½	No. 3, 400 lb bbls.....lb.	.13½	.14	.14	.13½
.....	.18	.17	.18	Blown, 400 lb bbls.....lb.	.15½	.16	.17	.15½
.06½	.31	.13¾	.19	China Wood, bbls spot NY...lb.	.....	.15	.17	.15
.05½	.18	.12½	.16½	Tanks, spot NY.....lb.	.....	Nom.	Nom.	Nom.
				Coast tanks, April.....lb.	.13	.13½	.14¾	.13
1918	.12	.12	.12	Cocoanut, edible, bbls NY....lb.	.11	.11½	.11½	.11
.09½	.09¾	.09	.09	Ceylon, 375 lb bbls NY....lb.	.09½	.09¾	.10	.09½
.08½	.08½	.08	.08¾	8000 gal tanks NY.....lb.	.08¾	.09	.09	.08¾
.10½	.10½	.09½	.10	Cochin, 375 lb bbls NY....lb.	.10½	.10½	.10½	.10½

Prices Current and Comment

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although the total advance in price during the month has only been ½c @ 1c lb., the advance in price during the last two weeks has been just double that, or 1c @ 1½c lb.

Olive Oil — Foots is now at about the same price level at which it was quoted last month. During the latter part of that month, however, it had advanced to 10c @ 10⅛c lb. The present quotation of 9¾c @ 10c lb., therefore, represents a decline from that figure to approximately the same position held last month. Both grades of oil have remained unchanged. Producers continue to hold the oil thus keeping the supply low and preventing declines in price which normally should follow the release of the new and abundant crop.

Palm Oil — Lagos has varied slightly in price during the past month but now retains practically the same position at which it was last reported. At one time it dropped ⅛c lb. in price but now is back at 7⅞ @ 8c lb. Niger has remained steady and unchanged.

Perilla Oil— —A shortage of supplies at the Coast has lead to an increase in the tank price to 10¾c lb. during the month.

Rapeseed Oil — The past month has witnessed the return of English oil to the market, where it is being quoted at 90c gal. Blown has advanced to $1.06 gal. and Japanese to 88c gal. Of this latter there is practically none available for immediate delivery. High prices are likely to continue for the next ninety days.

Red Oil — Distilled oil has declined ¼c @ ½c lb. in the face of keen competition among producers. The barrel price is now at 9¼c @ 9¾c lb. and the tank price at 8¾c lb.

Soy Bean Oil— Prices at the Coast are nominal due to the fact that no supplies are at present available. Prices in New York as yet remain unchanged.

Stearic Acid — Triple-pressed distilled alone remains unchanged in price. Double-pressed, both distilled and saponified, is lower, the first being quoted at 11c @ 11½c lb. and the latter at 11½c @ 12c lb.

Stearine Oleo — Has advanced 2⅜c lb. since last reported. This advance has been made in consistent stages, week by week, with but slight offerings and steady demand. Now quoted at 11¾c lb.

Tallow — Declined in price soon after last reported here, but then recovered and advanced to a higher price than last quoted. Extra is now at 8¾c lb. and edible at 10½c lb.

Tallow Oil — Has declined ¼c lb. in price. Now being quoted at 11¼c lb. in barrels and 10¼c lb. in tanks.

1914 July	1927 High	1927 Low	1927 Aver.			Current Market	1928 High	1928 Low
.05⅛	.10	.08¼	.09¼	Tanks NY	lb.	.....	.09¼	.09¼	.09¼
.....	.09¼	.08¼	.09¼	Manila, bbls NY	lb.	.09¼	.09¼	.10	.09¼
.....	.08¼	.08¼	.08⅜	Tanks NY	lb.	.....	.08¼	.08¼	.08¼
.....	.08¼	.08	.08¼	Tanks, Pacific Coast	lb.	.....	.08¼	.08¼	.08¼
				Cod, Newfoundland, 50 gal bbls					
.36¼	.66	.63	.64¼		gal.	.....	.67	.67	.63
.36¼	.59	.59	.59	Tanks NY	lb	.62	.63	.63	.62
				Cod Liver see Chemicals					
1918	.06	.06	.06	Copra, bags	lb.	.....	.05½	.06¼	.05½
.06⅛	.11	.07	.10	Corn, crude, bbls NY	lb.	.....	.11	.11	.10⅜
.06¼	.09¼	.07	.08¼	Tanks, mills	lb.	.....	.09	.10	.08¼
1916	.14	.10½	.12	Refined, 375 lb bbls NY	lb.	.....	.12½	.12½	.12½
1916	.12	.11	.11	Tanks	lb.	.....	.11½	.11½	.11½
.06	.09½	.06¼	.08	Cottonseed, crude, mill	lb.	.....	.08¼	.09	.07¼
.07⅛	.11¼	.08 1/5	.10	PSY, 100 lb bbls spot	lb.	.....	.10	.10¼	.09¼
				Apr—June	lb.	.....	.10½	10.45	.09½
				Degras, American, 50 gal bbls					
.02⅞	.04¼	.04¼	.04¼	NY	lb.	.04½	.05	.05	.04¾
.03⅛	.04⅛	do	do	English, brown, bbls NY	lb.	.....	.05⅜	.05⅜	.04⅛
.03⅛	.05¼	.05¼	.05¼	Light, bbls NY	lb.	.....	.05¾	.05¾	.05¼
.04⅛	.07½	.06	.06⅜	Greases, Brown	lb.	.....	.07¼	.07½	.07
.05⅞	.08	.06½	.07¼	Yellow	lb.	.07	.07½	.08	.07
.06⅞	.10⅛	.08¼	.09⅜	White, choice bbls NY,	lb.	.09¼	.09½	.10½	.09¼
.....	.....	.....	.....	Herring, Coast, Tanks	gal.	.40	Nom.	Nom.	.40
.009	.09½	.09	.09⅛	Horse, bbls	lb.	.09½	Nom.	Nom.	.09½
.13	.16¾	.14¼	.15½	Lard Oil, edible, prime	lb.	.....	.16	.16	.15½
.....	.13¾	.10¾	.12	Extra, bbls	lb.	.....	.13	.13	.12¾
.09	.12½	.10⅛	.11¼	Extra No. 1, bbls	lb.	.....	.11¼	.12½	.11¼
.09⅛	.13⅛	.12½	.13⅛	Off prime, bbls	lb.	.....	.14	.14	.13¾
.078	.11 4/5	.10 2/5	.11	Linseed, Raw, five bbl lots	lb.	.....	10.2	10.4	10.0
.077	.11 9-10	.09 6-10	.10⅛	Bbls c-l spot	lb.	.....	9.8	10.0	9.6
.076	.10⅛	.09	.09 7-12	Tanks	lb.	.....	9.0	9.2	8.8
.....	.09¾	.09¾	.09¾	Lumbang, Coast	lb.	.....	.09¾	.09¾	.09¾
.33⅛	.47½	.44	.46⅜	Menhaden Tanks, Baltimore	gal.	.....	Nom.	.46	.46
.....	.90	.10	.36⅜	Blown, bbls NY	lb.	.....	.09	.09	.09
.43	.70	.67	.68¼	Extra, bleached, bbls NY	gal.	.....	.70	.70	.67
.39	.66	.63	.62	Light, pressed, bbls NY	gal.	.63	.64	.64	.63
.37	.66	.69	.67¾	Yellow, pressed, bbls NY	gal.	.66	.67	.67	.66
				Mineral Oil, white, 50 gal bbls					
					gal.	.40	.60	.60	.40
				Russian, gal	gal.	.95	1.00	1.00	.95
.14	.18¾	.14½	.17¼	Neatsfoot, CT, 20° bbls NY	lb.	.....	.18¼	.18¼	.18¼
.....	.13½	.10½	.12	Extra, bbls NY	lb.	.....	.12	.12½	.12
.....	.16¾	.12¾	.14¼	Pure, bbls NY	lb.	.....	.15¼	.16¼	.15¾
.08	.18½	.10	.13¾	Oleo, No. 1, bbls NY	lb.	.....	.15	.17¼	.14½
.07½	.17	.08¾	.12	No. 2, bbls NY	lb.	.....	.13½	.15½	.12¾
.07¼	.14	.08¼	.10½	No. 3, bbls NY	lb.	.....	.12¾	.14	.11¼
.83	1.75	1.40	1.48½	Olive, denatured, bbls NY	gal.	1.25	1.30	1.30	1.20
1918	2.00	2.45	2.15	Edible, bbls NY	gal.	1.90	2.00	2.00	1.90
.07½	.10½	.08¾	.09⅛	Foots, bbls NY	lb.	.09¾	.10	.10	.09¾
.08¼	.09½	.09	.09½	Palm, Kernel, Casks	lb.	.....	.09½	.09½	.09¼
.07	.08¾	.07½	.08	Lagos, 1500 lb casks	lb.	.07¾	.08	.08½	.07¾
.....	.08¾	.07¼	.07½	Niger, Casks	lb.	.07	.07½	.07¾	.07
.....	.14½	.12	.12	Peanut, crude, bbls NY	lb.	.12	.12½	.12½	.12
.....	.15½	.14¼	.15	Refined, bbls NY	lb.	.14½	.15	.15	.14½
.....	.16½	.12½	.14	Perilla, bbls NY	lb.	.13	.13¾	.13½	.13
.....	.14½	.10	.12	Tanks, Coast	lb.	.....	.10¾	.11	.10½
.....	1.70	1.70	1.70	Poppyseed, bbls NY	gal.	1.70	1.75	1.75	1.70
.63	1.05	1.00	1.01	Rapeseed, blown, bbls NY	gal.	.....	1.06	1.06	1.01
.....	.90	.82	.87	English, bbls NY	gal.	.....	.90	.90	.87
.....	.85	.76	.80⅜	Japanese, bbls NY	gal.	.....	.88	.88	.82
.06¾	.10	.09	.09	Red, Distilled, bbls	lb.	.09½	.9¾	.10	.09½
.....	.09½	.08¼	.08⅜	Tanks	lb.	.....	.08¼	.09¼	.08¾
.....	.50	.50	.50	Salmon, Coast, 8000 gal tks	gal.	.50	Nom.	Nom.	.50
.....	.47	.43	.45	Sardine, Pacific Coast tks	gal.	.....	.45	.45	.45
.08⅛	.13	.11½	.12½	Sesame, edible, yellow, bbls	lb.	.12¾	.13	.13½	.12¾
.....	.14	.14	.14	White, bbls	lb.	.....	Nom.	.15	.14
.34	.40	.40	.40	Sod, bbls NY	gal.	.....	.40	.40	.40¾
.....	.09¾	.09½	.09¾	Soy Bean, crude					
.06½	.....	.....	.....	Pacific Coast, tanks	lb.	.....	Nom.	.09¾	.09
.....	.12½	.10¾	.12	Soy Bean, crude, bbls NY	lb.	.12	.12½	.12½	.12
.....	.11	.10½	.10½	Tanks NY	lb.	.....	10½	.10½	.10½
.....	.13	.12	.13	Refined, bbls NY	lb.	.....	.13½	.13½	.13½
				Sperm, 38° CT, bleached, bbls					
.70	.85	.84	.84½	NY	gal.	.84	.85	.85	.84
.68	.82	.79	.80½	45° CT, bleached, bbls NY	gal.	.79	.80	.80	.79
				Stearic Acid, double pressed dist					
1916	.13¼	.11¼	.12	bags	lb.	.11	.11½	.12	.11
				Double pressed saponified bags					
1916	.14	.11½	.12		lb.	.11½	.12	.12¼	.11½
1916	.15½	.13½	.14	Triple, pressed dist bags	lb.	.13½	.14	.14	.13½
.07¼	.13	.08¾	.11	Stearine, Oleo, bbls	lb.	.....	.11¾	.11¾	.09¾
.06	.09	.07¼	.08	Tallow, City, extra loose	lb.	.....	.08¼	.09½	.08½
.07	.11	.08¼	.10	Edible, tierces	lb.	.....	.10½	.10¾	.10
.09	.10¾	.08½	.10	Tallow Oil, Bbls, c-1 NY	lb.	.....	.11¼	.11¼	.11½
.09½	.12¼	.10	.11	Acidless, tanks NY	lb.	.....	.10¼	.10⅞	.10¼
.....	.08¼	.07¼	.07¾	Vegetable, Coast mats	lb.	.08	Nom.	Nom.	.08
.04¾	.11	.11	.11	Turkey Red, single bbls	lb.	.11	.12	.12	.11
.05½	.14	.14	.14	Double, bbls	lb.	.14	.16	.16	.14
				Whale, bleached winter, bbls					
.50	.78	.78	.78	NY	gal.	.78	.80	.80	.78
.52	.80	.80	.80	Extra, bleached, bbls NY	gal.	.80	.82	.82	.80
.48	.76	.76	.76	Nat, winter, bbls NY	gal.	.76	.78	.78	.76

THE WARNER CHEMICAL COMPANY

415 LEXINGTON AVE. NEW YORK, N.Y.

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NEW YORK

March 27th, 1928.

Mr. C. B. Patterson,
The Tyler Patterson Co.,
Cuyahoga Building,
Cleveland, Ohio.

My dear Patterson:

We have heard that story before. In fact, claims seem to make up about 90% of some chemical sales efforts.

We do not say that our carbon bisulphide is better than any other on the market. But we do know that it never varies from a standard of 99.9% purity, and I have had a lot of good customers tell me that they know of no other brand obtainable that is any better.

Don't you find that your customers among the consumers consider the sure knowledge that they can, at all times, rely on prompt delivery as a matter of great importance to them. I do, and I like to stress our record in this respect--it is 100% since we started making bisulphide more than twelve years ago. Of course, the secret is that we maintain ample reserve stocks both at South Charleston, W. Va., and Carteret, N. J., so that we are always ready all the time to ship any quantity from a five-gallon drum to a tank car.

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John A. Chew

Vice-president.

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Local Reports *from our Correspondents at the Principal Consuming Centers of Industrial Chemicals*

California

Illinois

DETROIT

Chemical conditions in this locality are improving to some extent, although not as rapidly as anticipated.

The automobile plants all seem to be quite busy although there is a temporary lull which we think is caused by the unfavorable weather which we have been having.

Collections are very good. There are no business changes of any importance that we know of.

ST. LOUIS

Generally speaking, volume of business is apparently increasing. In spite of this fact, business men generally in this territory are complaining about conditions. Spray and agricultural chemicals are beginning to move with the arrival of warm weather, altho heavy demand is not expected for another two or three weeks. In spite of low prices on linseed oil and turpentine, these items are not moving in as large volume as might be expected. Apparently the trade is looking for even lower prices and is accordingly holding off before signing contracts. The ceramic and enameling industry is showing signs of real life and movement of all chemicals in this direction is fairly large. Red lead has declined to 9½c lb. and tin oxide, in spite of an advancing tin market, has moved down to 56c per lb. In the face of a threatened shortage on import of castor beans, the castor oil market remains very firm, altho it has not advanced lately. Collections are fair, but are not as good as might be warranted by the easy position of money.

KANSAS CITY

Business is still considered to be slow in the middle-western territory though in general it seems to us to be improving. Orders are frequent but for small volume.

Competition for glycerine has been active but it would now appear that the low-point has been reached and the market shows signs of reaction.

The alcohol situation is disturbing a good many buyers and there is considerable irritation due to Governmental interference, on this item.

Reasonable activity is developing in the paint industry and the position of the oil refiners shows some improvement with the demand for raw materials increasing.

NEWARK

The producers of heavy chemicals in this market find that their production is increasing and is about 15% higher than

Massachusetts

Michigan

Missouri

Local Reports *from our Correspondents at the Principal Consuming Centers of Industrial Chemicals*

Missouri---(cont.)

New Jersey

New York

the corresponding period last year, but the unusual feature about it is that the increased production is coming with approximately the same amount of help that was employed a year ago, although in selling the goods the net profit is smaller than heretofore. April bids fair to measure up to March. Collections are good and orders for April are anticipated to be from fair to good.

The general unemployment situation in north Jersey is decreasing and the use of power is increasing over the corresponding three months of 1927 which shows an apparent improvement in general business conditions.

There is little or no change over January and February, in the textile industry, although some producers say they can see a little improvement. Those making silk specialties are apparently doing a profitable business but the general trade is no more than holding its own.

CLEVELAND

General business in the Cleveland territory is getting better. The steel business, which is the barometer in this territory, is going along at a good rate with many of the consumers of steel contracting for the second quarter at slightly higher prices.

The paint and varnish industry is also moving well. Some of the manufacturers are working over time. Buying of chinawood oil and linseed oil has been rather spotty.

The general feeling here is one of optimism.

PHILADELPHIA

Chemical trade conditions in Philadelphia and adjacent territory, have been satisfactory since our last report. When we say satisfactory, we are taking it on a monthly basis. There are, of course, good days and bad in the month, but on the average it is fairly satisfactory. Naphthaline is extremely active and in good demand. Prices have advanced considerably since the last report, and on account of the warm weather we are having, it has advanced the demand considerably. Manufacturers seem to be considerably behind on deliveries. Also, castor oil in this district seems to be scarce and in quite large demand. Most of the drug houses report business in general in good condition; the paint and varnish industries appear to be busy. Textile trades also seem to have more business; while the leather trades seem to be just going along, although some say that the business is a little bit better. Collections also, are fair.

Ohio

Rhode Island

A Resume of the Franco-German Dye Position

By Consul H. C. Claiborne, Frankfort-on-Main, Germany

The Franco-German agreement relating to dyestuffs is being extended to cover nitrogenous products and mixed fertilizers. The Kuhlmann interests already have financial participations in the Norsk Hydro and come into contact with the I.G. through the latter's agreement with that concern, while the manufacture of mixed fertilizers is being undertaken in France following the I.G.'s production of nitrophoska and the British Chemical Combine's nitrochalk, movements which constitute ample evidence of confidence in the success of such mixed fertilizers.

Competition in production and sales of dyestuffs is abandoned and uniformity in dyestuffs organization in France and Germany is to be aimed at. Although each country is to maintain independence in an economic sense production and sales will be apportioned as to quantities and varieties on a basis of industrial and commercial economy. Dye production, both present and future, will leave the ratios between the two countries intact which, of course, gives ample latitude for increase of production, if warranted by sales.

The Cartel's Function

No little publicity was given to the declarations of the participants that the objects of the agreement were to rationalize production in order to reduce prices and increase consumption, although it may be remarked that the effect of such agreements are, as a general rule ultimately to increase prices. Emphasis was also placed upon statements that the agreement was in no sense directed against other countries and visualized the possiblity of its extension to other countriesal, though those countries not participating in the agreement may expect intensified competition in foreign markets and it is worthy of comment that responsible sources are in agreement that deficiencies in production or types of dyes in one participat ng country will be drawn from the other or others. Of interest also are the recent unconfirmed statements in the press that the I.G.'s sales organization will take over the sale and distribution of French dyestuffs in the Far East and that the French selling organization will handle the I.G.'s dyestuffs in Spain and unspecified other countries, arrangements which are expected to result in substantial economics and to be followed by similar sales agreements for other fields. France will take up the manufacture of a number of dyes which it has not hitherto produced, receiving German technical aid and largely covering her remaining requirements in Germany.

It may also be recalled that at the time of the failure of Anglo-German negotiations for a dyes agreement and the announcement that such negotiations had been indefinitely postponed the I.G. issued a statement to the effect that it had been impossible to reach a "purely commercial agreement" with the British. Military and political considerations are said to have been interjected into the negotiations in addition to a Governmental desire to maintain intact the principles of imperial preference and imperial unity.

The French Position

For a number of years the dyestuffs industries of the leading producing countries have been trying to work out a basis for mutual understanding concerning apportionment of foreign markets. The first tangible result of these efforts is the recent conclusion of a German-French agreement whose essential points have just been given publicity.

The details of the Franco-German agreement still await official publication from the reports hitherto published and neither confirmed nor denied, it appears, that the French industry has been assigned a production quota of 15,000 tons a year of which two-thirds according to unconfirmed rumor are to be disposed of in the domestic market and one-third exported. The total quantity conveys but a limited idea of the value of French production. The latter may be gathered from French statistics showing the amount of each group of dyes produced, as quoted in the following table:

Groups of Dyes	*1924*	*1925*	*1926*
Direct dyes			3,457
Acid dyes			3,637
Pasic dyes	7,982	6,496	754
Mordants			1,026
Sulfur dyes	2,325	3,562	2,080
Vat dyes including indigo	4,668	3,960	4,286
Non-specified dyes	...	...	649
Total production	14,975	13,019	15,889
Imports	2,444	1,451	1,332
Exports	...	...	3,522

The greater part of the French production represents the cheaper dyes, indigo and vat dyes being the most important group, whereas the production of high-priced dues, such as the indanthrene group, is insignificant. The French consumption of dyes was estimated in 1913 at 8,000 to 9,000 tons annually. But at present should amount to about 13,000 tons. According to the terms of the agreement, the French industry is to supply 10,000 tons for the domestic requirements so that about 3,000 tons will have to be imported. These imports will be shared between the Swiss and German industries. Since the Franco-Swiss agreement was concluded earlier than the France-German one, it appears plausible that an arrangement must have been considered for apportionment of German and Swiss shares in the French imports, otherwise the situation for the I.G. would be highly uncertain. However, reports in the German technical press credit the British Imperial Chemical Industry, (Ltd.) with active efforts to reach an agreement with Swiss producers and drive a wedge into the plans for a continental dyes cartel. It is believed that French imports will contain an increasing proportion of high-priced fast dyes.

The export quota assigned to the French industry exceeds the actual exports during the past year by approximately 1,500 tons. French exports will probably consist in the main of indigo, sulfur and direct dyes. The I.G. is supposed to have given certain concessions to the French industry in the above lines, although the effect of these concessions remains problematic so long as the present competition in the indigo and sulfur dye markets goes on uncontrolled. The main battleground of this trade conflict is the Far East, and especially China where Germany, the United States and in lesser degrees, England, France, and Switzerland now dispute the market for their goods. Without a more comprehensive international agreement, the French industry is not expected to hold its own in this keenly contested market.

Further Agreements Problematical

As regards further extension of international agreements, there are certain important difficulties to be overcome. Not all the producing nations have carried the concentration of their chemical industries to the point where they might be dealt with as a single contractant. The easiest case is that of Switzerland where the dyestuffs industry effected, at the end of the war, a concentration patterned after the German I.G. In 1924 a German-Swiss price agreement was concluded affecting a certain small group of dyes. The difficulty of the German-Swiss case lies in the fact that both countries produce large quantities of high priced fast dyes the manufacture of which in other countries is still in infancy. However, the fact that the competition in this line is limited to two countries, simplifies the problem a great deal.

The dyestuffs industry of Great Britain is not fully centralized. The Imperial Chemical Industries is said to represent about 40 per cent. of the entire British production, besides controlling the Scottish Dyes, (Ltd.). A quite independent position is taken by the Clayton Aniline Co. of Manchester which is a branch establishment of a Swiss concern. The remainder of the industry consists of small independent factories. In this connection it is pointed out in certain quarters that the negotiations recently

(*Continued on page 458*)

Preliminary 1927 Census of Dyes

(*Continued from page 416*)

photographic chemicals, synthetic resins, and tanning materials. Certain intermediates are used as accelerators in vulcanizing rubber, as substitutes for camphor, as insecticides, germicides, and in the flotation process of concentrating ores.

The total output of intermediates in 1927 was 236,973,000 pounds, as compared with 229,653,802 pounds in 1926. The sales in 1927 totaled 92,255,000 pounds valued at $19,766,000, or a unit value of 21.4. cents. In 1926, sales amounted to 86,916,836 pounds, valued at $18,990,042, or 21.8 cents per pound.

Table 8 shows the production and sales of important coal-tar intermediates for 1927.

TABLE 6

Dyes: Domestic Exports, 1920-1927

Year	*Quantity Pounds*	*Value*
1920	.....	$29,823,591
1921	.....	6,270,139
1922	8,344,187	3,996 443
1923	17,924,200	5,565,267
1924	15,713,428	5,636,244
1925	25,799,889	6,694,360
1926	25,811,941	5,950,159
1927	26,766,168	5,491,466

Perfumes and Flavors

TABLE 7

Production and Sales of Important Perfumes and Flavors, 1927

Name of Product	*Sales*		*Production*
	Quantity Pounds	*Value*	*Quantity Pounds*
Perfumes:			
Amyl salicylate	18,000	$20,500	17,000
Benzyl acetate	57,600	57,000	60,000
Benzyl alcohol	46,600	36,600	49,000
Benzyl benzoate	32,400	34,400	33,000
Diethyl phthalate	593,000	161,000	594,000
Methyl acetophenone	900	2,600	1,000
Methylphenyl acetate	4,400	12,009	4,500
Phenyl ethyl acetate	750	5,700	1,000
Flavors:			
Coumarin	125,000	355,000	113,000

TABLE 8

Coal-tar Intermediates: Production and Sales, 1927

Name of Product	*Sales*		*Production*
	Quantity Pounds	*Value*	*Quantity Pounds*
1-Amino-2-naphthol-4-sulfonic acid	.....	.....	679,000
Chicago acid	.....	.....	99,000
H acid	.....	.....	2,404,000
J acid	.....	.....	169,000
Gama acid	.....	.....	355,000
p-Aminophenol and hydrochloride	206,000	$210,000	27,279,000
Aniline oil	13,558,000	1,918,000	27,084,000
Benzidine base	.....	.....	612,000
Benzoate of soda	898,000	412,000	993,000
Benzoic acid, U. S. P.	111,000	57,000	210,00
Chlorobenzene	6,352,000	351,000	13,962,000
Chlorometanilic acid	.....	.....	23,000
Dianisidine	.....	.....	83,000
Dichloroaniline	.....	.....	77,000
p-Dichlorobenzene	2,857,000	440,000	2,771,000
Dimethylaniline	.....	.....	3,004,000
Dinitrobenzene	684,000	96,000	1,587,000
Dinitrochlorobenzene	.....	.....	8,039,000
Dinitrotoluene	.....	.....	4,683,000
Diphenylguanidine	1,572,000	939,000	1,552,000
Metanilic acid	.....	.....	541,000
Naphthalene (refined, flake)	.....	.....	21,233,000
a-Naphthol	.....	.....	231,000
1-Naphthol-4-sulfonic acid (NW acid)	.....	.....	75,000
1-Naphthol-5-sulfonic acid	.....	.....	125,000
2-Naphthol-6-sulfonic acid (Schaeffer's)	.....	.....	108,000
2-Naphthol-3:6-disulfonic acid	85,000	34,000	607,000
b-Naphthylamine	.....	.....	597,000
1-Naphthylamine-4-sulfonic acid (Naphthionic acid)	.....	.....	976,000

(*Continued on page 456*)

Preliminary 1927 Census of Dyes

(Continued from page 454)

1-Naphthylamine-5-sulfonic acid (Laurents)	.....	.....	95,000
1-Naphthylamine-6 & 7 sulfonic acid	.....	.....	148,000
1-Naphthylamine-8-sulfonic acid	.....	.....	209,000
1-Naphthylamine-4:8-disulfonic acid	.....	.....	191,000
2-Naphthylamine-5:7-disulfonic acid	.....	.....	331,000
2-Naphthylamine-6:8-disulfonic acid	.....	.....	570,000
Nitrobenzene	2,219,000	190,000	41,774,000
p-Nitrochlorobenzene-o-sulfonic acid	.....	.....	82,000
Nitrosodimethylaniline	.....	.....	99,000
Nitrosophenol	.....	.....	291,000
Nitrotoluene	.....	.....	5,732,000
o-Nitrotoluene	.....	.....	3,403,000
p-Nitrotoluene	.....	.....	1,808,000
p-Nitrotoluene-o-sulfonic acid	.....	.....	694,000
m-Nitro-p-toluidine	235,000	390,000	256,000
Phenol	4,595,000	684,000	8,041,000
Phenyl-1-naphthylamine -8- sulfonic acid	.....	.....	262,000
m-Phenylenediamine	48,000	43,000	663,000
Phthalic acid and anhydride	4,064,000	687,000	4,550,000
Sulfanilic acid	.....	.....	1,313,000
Tetramethyldiaminodiphenylmethane	.....	.....	631,000
Thiocarbanilide	556,000	115,000	931,000
Tolidine and salts	.....	.....	128,000
o-Toluidine	1,153,000	259,000	2,290,000
p-Toluidine	351,000	109,000	839,000
m-Tolylenediamine	229,000	158,000	805,000
Xylindine and salt	.....	.....	183,000

Synthetic Organic Chemicals

TABLE 9

Preliminary Report of Production and Sales of Synthetic Organic Chemicals, 1927. (Noncoal-tar Origin)

Name of Product	*Sales*		*Production*
	Quantity Pounds	*Value*	*Quantity Pounds*
Amyl acetate and sec. amyl acetate	1,927,000	$547,000	2,691,000
Butyl acetate	12,671,000	2,601,000	26,653,000
Butyl propionate	1,720,000	535,000	1,732,000
Carbon tetrachloride	16,958,000	1,045,000	16,533,000
Ethyl acetate	34,099,000	3,576,000	50,273,00
Ethyl ether USP	4,138,000	1,357,000	5,203,000
Ionone	32,600	148,000	36,000
Isoamyl butyrate	9,000	11,000	10,000
Linalyl acetate	400	2,700	4 00
Rhodinol	4,400	41,000	4,400
Terpinyl acetate	11,000	12,000	11,000
Vanillin	316,000	2,071,000	301,000

German Activated Carbon Agreement

The agreement concerning activated carbon of the Verein fur Chemische Industrie A. G. of Frankfort with the Dutch Algemeene Norit Mastschapij, which was concluded for 30 years about one year ago, has come to a sudden end, according to Consul H. C. Claiborne, Frankfort on the Main, Germany. As was announced, the Verein fur Chemische Industrie increased its capital as a result of the agreement from 4,000,000 to 6,500,000 marks and purchased against cash the German factories belonging to the Netherland company. It now appears that the German factory made stipulations in regard to the common selling of the activated carbon which were impossible for the Norit to grant. The Verein is reported to have taken steps for the termination of the contract. It is not known whether it will resell the Chemische Werke Carbon G. m. b. H. and the Chemische Fabrik Juterbog G. m. b. H. to the Norit. It appears that the legality of the termination has not yet been definitely decided, and the Verein has taken the matter up with the courts. Since the agreement was concluded chiefly to settle patent conflicts between the two companies, it is quite possible that such conflicts may now become acute.

Annual importations into Finland of caustic soda was approximately 1,600 metric tons, of soda ash 5,000 tons, and of bleaching powder 4,000 to 5,000 tons. A local expert is of the opinion that the recently inaugurated production of by-product caustic soda by the Kymmene and Diesen Wood companies will not seriously affect the import trade unless the quality is improved materially. There appears to be an outlet for the American product and any firm interested in entering the Finnish market is invited to correspond with the office of the American commercial attache, Henriksgatan No. 22, Helsingfors, Finland.

The Franco-German Dye Position

(*Continued from page 452*)

interrupted between the I.G. and the I. C. I. were of little practical value since the British side did not represent the whole dyestuffs industry of Great Britain.

During 1927 the League of Nations published a booklet of 134 pages entitled The Chemical Industry, which was one of the fruits of the International Economic Conference held in Geneva during May of that year. Dr. C. Engewitter, Secretary General of the Chemical Section of the Association of German Industries, was designated to write an article upon that subject, but advance proofs were held by the British chemicals industry to be misleading and to place the British industry in an unfavorable position; therefore a report was written by British authors and similar action was taken by France and other countries.

Some idea of the difficulties of obtaining accurate production figures and hence in reaching international agreements may be realized from the following tables which represent respectively the German and English estimates of capacity for the manufacture of aniline dyes.

German Estimate

	Annual Capacity	*Output in 1924 Metric Tons*	*Per Cent.*
Germany	160,000	72,000	45
United States	54,000	31,000	57
Great Britain	24,000	19,000	79
Switzerland	13,000	10,000	77
France	19,000	15,000	78
Italy	6,000	5,000	80
Japan	9,000	6,000	67
Total	285,000	158,000	56

English Estimate

	Estimated Capacity Tons	*Estimated Output 1924 Tons*	*Percentage of output on capacity*
Germany	250,000	70,000	28
United States	60,000	30,000	50
Great Britain	40,000	15,000	38
Switzerland	20,000	13,000	65
France	25,000	17,000	70
Italy	10,000	5,000	50
Other countries	15,000	4,000	27
Total	420,000	154,000	36

Petroleum in Organic Chemicals

(*Continued from page 409*)

In other words I believe the technologists of the petroleum industry have obviously been solving their problems in the relative order of their importance. Chemical synthesis will come in due course. Some of the forward looking refining companies are giving it earnest consideration. It is earnestly to be hoped that researches in the wide field of non-benzenoid hydrocarbons undertaken for their scientific interest will be extensively carried out, to provide a great mass of scientific information out of which many things of industrial importance will be developed. This is where the emphasis on research should be put. The aid to such research afforded by the bequests of the Universal Oil Products Company and Mr. John D. Rockefeller is the best indication that this situation is widely appreciated.

Production of calcium carbide in Spain is placed at approximately 24,000 metric tons, according to Commercial Attache Charles A. Livengood, Madrid. Annual raw material consumption is 44,000 tons of calcium carbonate and 15,000 tons of coal. The production of individual establishments is exceedingly small. A recently compiled list contained the names of 19 producing plants with a total of slightly over 800 employees.

Potash Permanganate Duty Hearing

United States Tariff Commission announces public hearing in Washington, March 19, on application of Carus Chemical Co., La Salle, Ill., for an increase in duty on potassium permanganate. In its statement of information in its investigation thus far, the Commission says in part as follows:

"Potassium permanganate has been dutiable under the last three general tariff acts as follows:

Act of 1922, paragraph 80, 4 cents per pound.

Act of 1913, paragraph 64, 1 cent per pound.

Act of 1909, paragraph 3, 25% ad valorem.

"An application requesting an investigation looking toward an increase in the duty on potassium permanganate, under section 315 of the tariff act of 1922, was submitted under date of November 12, 1926, by Hugh M. Frampton, attorney, representing the Carus Chemical Co.

"The Commission instituted an investigation on May 25, 1927. Representatives of the Tariff Commission secured foreign costs from the single German manufacturer in September, and from the single domestic manufacturer in November, 1927.

"About one-tenth of the domestic requirements of manganese ore for all purposes was supplied from domestic sources during the period 1923-1925. In 1926, however, most of the manganese ore for potassium permanganate was obtained from Cuba, and the remainder from Brazil. Imported manganese ore is dutiable under paragraph 302 at one cent per pound on metallic manganese content. Section 320 of the act of 1922 continues in force the provisions of the Cuban convention according free entry to products of the soil or industry of Cuba which were on the free list of the tariff act of 1897. Manganese ore imported from Cuba is exempt from duty thereunder. The German manufacturer uses imported manganese ore which is duty free. Evidence before the commission would seem to indicate that the cost of manganese ore is somewhat lower in Germany than in the United States.

Domestic Potash Users at Disadvantage

"Domestic consumers of caustic potash are at a disadvantage as compared with German consumers because the United States depends upon imported potash to supply most of its requirements, whereas Germany has the rich Stassfurt deposits from which potassium chloride is obtained at low cost and converted into caustic potash. A small quantity of domestic potash from Searles Lake, Calif., is converted into caustic potash. The duty on imported caustic potash is one cent per pound.

"Lime is obtained for the domestic industry within 200 miles of the factory and is only a small item of expense.

"Prior to the World War there was no domestic production of potassium permanganate. The cessation of imports, and the demands for war purposes and for the manufacture of saccharin greatly stimulated the industry in the United States. During the war and up to 1923, several domestic concerns manufactured potassium permanganate, but beginning with 1923, and up to the present time, the applicant has been the sole domestic producer.

"Domestic production of potassium permanganate in 1925 and 1926 can not be published without revealing individual operations. It was, however, substantially in excess of imports.

"Germany has been the largest producing country both prior to and since the World War. Before 1914 Germany supplied most of the world's requirements, but during and since the war several countries, including the United States, have engaged in the manufacture of this necessary article.

"In 1926 there was only one large German producer, the Interessen Gemeinschaft Farbenindustrie. Costs of production were obtained by the commission from the I. G. factory at Bitterfeld, near Leipzig.

"Probably the next largest European producer is the Verein fur Chemischer Produtkion, at Aussig, Czechoslovakia. This concern has exported substantial quantities of potassium permanganate to the United States." (*Continued on page 462*)

Potash Permanganate Duty Hearing

(*Continued from page 460*)

The examination of the books of both foreign and domestic producers revealed the fact that in 1926, the total cost of production was lower in Germany than in the United States. In addition the domestic producer is handicapped by distance from seaboard and from New York area, where one-third total production is consumed. An additional factor is that the domestic producer specializes in one product while the German manufacturer produces a wide range of products, thus reducing overhead expenses.

Statement By Freeport Texas President

In remarks attached to the annual report of Freeport Texas Co., President E. P. Swenson says in part.

"Production at Bryan Mound during the past fiscal year totaled 300,175 tons, against 284,910 tons in the preceding year. An intensive drilling program has been in progress during the past year at Bryan Mound to establish sulfur values present in hitherto undeveloped areas. Preparations are now in progress for commencement of sulfur production in this new area.

"During the fiscal year 1927 production at Hoskins Mound (owned jointly with Texas Co.) was 489,435 tons, against 287,140 tons in the previous year, an increase of approximately 70% in tonnage, while production costs increased only 12½%.

"From January 1, 1928, to March 14, both the Bryan and Hoskins Mounds have produced more sulfur than for the same period of 1927. Total production for the calendar year ending December 31, 1927, was 790,315 tons against 584,210 tons for the previous period, an increase of 206,095 tons.

"Department of Commerce reports production of sulfur in the United States in 1927 of 2,111,618 tons, against shipments in 1927 of 2,072,109 tons, an increase in stocks over 1926 of approximately 40,000 tons. The world's production and consumption seem about balanced, an ideal situation.

"Use of natural gas during the past year has resulted in a saving to the company in fuel cost of $600,000, as against burning oil. Contracts for the fiscal year 1927 showed an increase over 1926 of 188,792 tons.

"During the calendar year 1927 approximately 213,000 tons of sulfur sold and delivered were affected by lower prices on continuing contracts, which made a difference of $660,000 in the company's earnings last year. All low-priced contracts have now been renewed at present full prices except 20,000 tons, a negligible amount. Contracts thus far for 1928 delivery show an increase over the corresponding period last year. Demand for crude sulfur continues strong at $18 a ton at mine and $22 and $22.50 a ton at eastern seaboard points.

Imports of synthetic dyes during February this year totaled 478,407 pounds, with an invoice value of $391,351, as compared with 312,277 pounds, valued at $262,364, for the corresponding period in 1927, according to figures made public by the Department of Commerce.

Of the total importation 56 per cent. came from Germany, 32½ per cent. from Switzerland, and the balance from six other foreign nations.

Trade in vegetable oils in 1927 was somewhat smaller than in 1926 totaling approximately $163,000,000 compared with $167,000,000 for the previous year, according to Department of Commerce. The 1927 trade comprised $156,000,000 for imports and $7,000,000 for exports as against the 1926 totals of $149,000,000 and $18,000,000 respectively for imports and exports.

I. G. Farbenindustrie is credited with two-thirds of the total British chemical patents for 1927. Company took out over 800 British patents in 1927, which compares with nearly 400 in 1926, over 200 in 1925, and less than 100 in 1924.

Foreign Trade Opportunities

Beeswax	*29875	Dessau, Germany	Purchase.
Borax	*29894	Antwerp, Belgium	Do.
Bronze and gilding powders	†29932	Warsaw, Poland	Agency.
Lead, red	*29978	Barcelona, Spain	Purchase.
Naval stores	†29913	Dresden, Germany	Agency.
Oils, pine, and pine tar	*29897	Hamburg, Germany	Do.
Paints, automobile	*29938	Plauen, Germany	Do.
Paints, ready-mixed, coldwater paints, and pyroxylin lacquers.	*29950	Barcelona, Spain	Either.
Pyrite cinders, fine	*29986	Helsingborg, Sweden	Purchase.
Rosin in various grades	*29896	Bucharest, Rumania	Agency.
Rosin and turpentine	*29897	Hamburg, Germany	Do.
Sugar, milk	†29903	Yokohama, Japan	Do.
Zinc oxide	†29893	Bombay, India	Purchase.
Benzoate, bicarbonate of soda, carbonates, albumen, citric acid, tartaric acid, salicylic acid, etc.	†30070	Rio de Janeiro, Brazil	Agency.
Chemical specialites	‡30088	Barcelona, Spain	Do.
Chlorate, potassium and sodium, bichromate of soda, and chrome alum.	*30090	Vienna, Austria	Purchase.
Coal tar and coal tar pitch	*30091	Quebec, Canada	Do.
Copper oxide	*30089	Vigo, Spain	Do.
Copper sulphate and Florida phosphate rock.	†30047	Vienna, Austria	Agency.
Essential oils	†30070	Rio de Janeiro, Brazil	Do.
Glue and glycerine	†30003	Ahmedabad, India	Purchase.
Leather finishes	*30026	Rome, Italy	Do.
Medicines, prepared, and toilet preparations.	‡30088	Barcelona, Spain	Agency
Naval stores	*30048	Valparaiso, Chile	Do.
Paint, enamel, white and colored.	*30074	Nagasaki, Japan	Do.
Paints, varnishes, and lacquers	‡30088	Barcelona, Spain	Do.
Paints and varnishes	†30003	Ahmedabad, India	Purchase.
Pyroxylin scrap, including old films.	*30072	Nuremberg, Germany	Do.
Rosin, synthetic	†30003	Ahmedabad, India	Do.
Superphosphate in bags	*30071	Quebec, Canada	Do.
Varnishes and lacquers	*30026	Rome, Italy	Do.
Zinc oxide	†30009	Bombay, India	Do.
Alcohol, butyl	*30215	Lyon, France	Purchase.
Alcohol, isopropyl	†30163	Magdeburg, Germany	Do.
Arsenic, borax, and soda ash	*30218	Concepcion, Chile	Do.
Arsenic ore	†30145	Hamburg, Germany	Agency.
Bleaching powder, borax, and heavy chemicals.	*30166	Helsingfors, Finland	Do.
Carbon black	†30114	Toronto, Canada	Do.
Disinfectants, fluid	†30217	Alexandria, Egypt	Do.
Insecticides	†30159	Copenhagen, Denmark	Purchase.
Lead, white and red	*30108	Oporto, Portugal	Agency.
Magnesium carbonate, lithopone, whiting, barytes, and zinc oxide.	†30114	Toronto, Canada	Do.
Oil, linseed, boiled	*30108	Oporto, Portugal	Do.
Paints	†30109	London, England	Do.
Paints for glass	*30218	Concepcion, Chile	Purchase.
Paints and oils	*30119	Manzanillo, Cuba	Agency.
Pitch, cottonseed	*30216	Liverpool, England	Do.
Polish, metal	†30169	Copenhagen, Denmark	Purchase.
Potassium iodide, sodium iodide, and iodine.	†30165	Meppel, Netherlands	Do.
Rosin	†30153	Warsaw, Poland	Agency.
Do	*30161	Cologne, Germany	Purchase.
Do	*30166	Helsingfors, Finland	Agency.
Salammoniac skimmings	†30145	Hamburg, Germany	Do.
Sulfur and sulfuric acid	†30114	Toronto, Canda	Do.
Tar, coal, 10,000 to 25,000 pounds.	*30160	Cork, Ireland	Purchase.
Turpentine	†30141	Barcelona, Spain	Agency.
Varnish	†30169	Copenhagen, Denmark	Purchase.
Water softeners	*30158	Malmo, Sweden	Both.
Zinc, oxide, lithopone, and other fillers and pigments for rubber manufacturing.	*30147	Toronto, Canada	Agency.
Acetic acid and methyl alcohol	*30420	Athens, Greece	Agency.
Bones, cattle	*30417	Liverpool, England	Do.
Borax	†30418	Brussels, Belgium	Do.
Borax, carbon black casein, methylated spirit, and derivatives of aniline.	*30471	Zurich, Switzerland	Either.
Chemicals, heavy	*30422	Habana, Cuba	Agency.
Cleansing materials, household	†30463	Amsterdam, Netherlands.	Sole agency.
Galalith pyroxylin plastics, etc.	†30419	Berlin, Germany	Agency
Insecticides, household, and cleansing preparations.	*30421	Lausanne, Switzerland.	Do.
Matches with reddish paraffin heads.	*30415	Casablanca, Morocco	Purchase.
Paints	*30376	Mexico City, Mexico	Agency.
Paints and oils, pigments, dyes, and varnishes.	*30422	Habana, Cuba	Do.
Pyroxylin sheets	*30470	Antwerp, Belgium	Purchase.
Rosin	*30416	Warsaw, Poland	Do.
Rosin and turpentine	†30434	Sao Paulo, Brazil	Agency.
Sulfur	†30418	Brussels, Belgium	Do.
Do	*30471	Zurich, Switzerland	Either.

It is said that the Alexandria carbon dioxide plant established by the Crown Brewery is now in operation in Egypt. This has affected importations of carbon dioxide which amounted to 105 long tons in 1925, 148 in 1926, and 59 tons during the first 11 months of 1927.

Twelfth Chemical Exposition Program

Management of the Twelfth Exposition of Chemical Industries which will be held in the Grand Central Palace, New York, during the week of May 6th, 1929, announces that it is arranging for a series of lectures upon chemical engineering, apparatus, instruments and chemical products applied in the arts. These lectures will be prepared by members of the staffs of exhibitors in the exposition and will be available for presentation in educational institutions throughout the country.

This course of lectures will in some measure be an extension of the Students' Course which is a regular feature of each exposition and will now for the first time become available to colleges and technical schools which desire to avail themselves of an opportunity to have their advanced students hear discussions by authorities upon the various subjects.

Among the lectures already arranged for are: "Multiple Effect Evaporation and Solvent Extraction," H. Austin, Ernest Scott & Co.; "Drying and Distillation," R. W. MacGregor, Ernest Scott & Co.; "Continuous Thickening and Countercurrent Washing the Chemical Industries," A. Anable, The Dorr Co.; "Dryers of the High Temperature Type," S. Gertz, C. O. Bartlett & Snow Co.; "Duriron Equipment" E. A. Suverkrop, The Duriron Company, Inc.; "Thermal Conductivity Gas Analysis and Control in Chemical Process Work," W. O. Hebler, Charles Engelhard, Inc.; "Water, Acid, Alkali, and oil proofing Concrete Construction," M. W. Meyer, Anti-Hydro Waterproofing Co.; "Protecting Concrete Floors and Tanks Against Action by Acids, Alkalis and Oils," M. W. Meyer, Anti-Hydro Waterproofing Co.; "Principles of Pyrometry: Instruments in Industry and the Power Plant for the Measurement of Temperature and Flow," C. H. Kerr, Brown Instrument Co.; "Use of Diatomaceous Silica in Filtration Processes," E. A. Phoenix, Celite Products Co.; "Workability in Concrete with Particular Reference to the use of Diatomaceous Silica," E. A. Phoenix, Celite Products Co.; "High Temperature Insulation," E. A. Phoenix, Celite Products Co.

Colleges, schools and other educational institutions seeking to take advantage of this lecture series may address Charles F. Roth, Manager of the Exposition with offices at Grand Central Palace. Some of the lecturers will be available in certain localities and others for convenience when upon travel tours.

Nearly $500,000 more than last year, industrial chemical exports from the United States rose sharply in February to $2,290,000 despite the light gain of less than one per cent. in total chemical exports valued at $13,953,000, according to the Chemical Division, Department of Commerce.

Export trade in sodas and sodium compounds was particularly strong in February, with 43,300,000 pounds, valued at $1,033,000, shipped. Sodium borate and sodium hydroxide each accounted for about one-third the exports.

More than half as much again of industrial chemical specialties were shipped this February, or $1,265,000. Disinfectants, insecticides, etc., continued on the upward movement with 1,915,000 pounds, valued at $447,000 for the month. Gases exported reached over 1,000,000 pounds, valued at $75,000.

Sales of explosives manufactured in the United States and sold in February 1928 for domestic consumption, amounted to 10,715,000 lbs. of black blasting powder, 4,467,000 lbs. of permissible explosives, and 21,776,000 lbs. of high explosives other than permissible, according to Bureau of Mines, Department of Commerce. These sales in February represent decreases of 11 per cent. each for black blasting powder and permissibles when compared with January 1928; and also decreases of 18 per cent. for black blasting powder, and 17 per cent. for permissibles when compared with February 1927. High explosives showed an increase of 7 per cent. over sales of January 1928, but a decrease of two per cent. in comparison with February 1927.

Japan Fertilizer Imports Lower

Artificial fertilizers imported into Japan during 1927 totaled 2,153,025 tons, valued at yen 163,303,982, representing a remarkable drop of 2,121,412 tons and yen 36,556,584 from 1926, according to a report of the Japan Artificial Fertilizer Association. Last year's figures, both in the quantity and value, were the lowest ones during the last several years.

Unprecedented financial panic and the ebbing purchasing power of farmers resulting from the drop of prices of cocoons and rice were assigned as causes for the depression. The whole year imports are itemized as follows:

	Tons	Yen
Sodium nitrate	52,239	6,391,765
Sulfuric chloride,	31,001	4,182,502
Ammonium sulfate	247,594	32,682,883
Phosphatic ores,	403,999	10,963,970
Animals' bones,	31,233	2,856,959
Bone dust,	37,302	3,454,831
Bean cake,	1,175,976	88,436,694
Cottonseed cake,	59,782	4,785,918
Rapeseed cake,	64,285	4,435,603
Fish guano,	1,528	163,736
Other cakes,	16,490	1,286,674
Other fertilizers,	31,616	3,862,447
Total,	2,153,025	163,303,982

Both bean cake and sulfate of ammonia which are the largest imports experienced decided drops. The former declined 70,596 tons and yen 21,340,355 and the latter 39,478 tons and yen 11,232,143 from 1926. Except phosphate ores which gained 451 tons and yen 1,614.503 and sulfuric chloride which also gained 4,536 tons and yen 901,440, all others went off. Drop of Manchurian bean cake has been a general tendency since a few years ago, mainly due to an active demand aroused for such chemical fertilizers as sulfate of ammonia and superphosphatic fertilizers in Japan.

Leading bean mills in Dairen last year adopted the entire suspension of operation for two months to counteract the situation without success. Continued surplus of supply at home consequent upon the extension of plants and production capacity accounted for the decrease of imports last year. Japan Nitrogen Fertilizer Co., the Electro-Chemical Co. and others expanded their capacity.

Local Sulfate Output Increases

Home production of ammonium sulfate last year was 160,000 tons, a gain of about 20,000 tons. Last year's supply was 38,000 tons more than 1926. A 25,000 ton capacity plant of sulfate of ammonia has been erected at Toyama by the Dai Nippon Artificial Fertilizer Co. and during next month it will be worked to capacity. Gradual elimination of British and German sulfate of ammonia by the increased production in Japan means a severe blow to Brunner, Mond & Co. and Arhens & Co., both heavily interested in Japan.

A decided gain was made in import of phosphate ores last year. Superphosphate fertilizer is taking the place of bean cake, as the Government has decided to take protective policies for the industry. Last year's production was 685,000 tons, a gain of 50,000 tons over 1926. This year's import of ores will be about 430,000 tons, a little more than last year's and the import price yen 28.50 per ton, the same as last year's.

This year's outlook is uncertain for Chilean nitrate of soda. The Japanese importers, the Mitsuis, Mitsubishis and Asanos have mapped out for eight large sales agents in Japan their fields of operation. But it is doubted the price will revive, due to considerable stocks held by men other than these agents.

Fish guano, the only import of nitrogen fertilizers made from fish, has sharply declined in demand. It dropped 18,020 tons and yen 2,572,000. Demand, however, is coming from the United States for this fertilizer.

(*Continued on page 468*)

Japan Fertilizer Imports Lower

(*Continued from page 466*)

Production and sales amount of superphosphate of lime and those of compound fertilizers in Japan for 1927 were as follows:

	Superphosphate (In ton)	Compound fertilizer
Production,	685,000	178,100
Sales,	700,700	234,000

Production and sales of superphosphate of lime by six leading fertilizer companies for 1927 follow:

	Production (In ton)	Sales
Japan Artificial Fertilizer,	288,000	277,000
Sumitomo Fertilizer,	106,000	78,000
Lasa Phosphatic,	91,000	94,000
Nitto Sulfuric Soda,	35,000	33,000
Teikoku Fertilizer,	38,000	34,000
Kamishima Fertilizer,	39,000	37,000

Revised U. S. Soda Ash Specifications

Federal Specifications Board, March 24, submits to representative manufacturers proposed specifications for soda ash to be purchased by various departments and established of the United States Government, and asks that any comments or suggestions be submitted to the board not later than six weeks from date. Outline of proposed specifications follows:

Proposed Revision of F. S. B. No. 249, United States Government Master Specification for Soda Ash

I. GENERAL SPECIFICATIONS.

There are no general specifications applicable to this specification.

II. GRADES.

This specification covers two grades, as follows: Grade A, 58% ordinary (or light) soda ash; Grade B, 58% dense soda ash.

III. MATERIAL.

Soda ash shall be the high-grade anhydrous sodium carbonate in powdered form and shall be the grade specified by the purchaser.

IV. GENERAL REQUIREMENTS.

See Detail Requirements, Section V.

V. DETAIL REQUIREMENTS.

Soda ash shall conform to the following requirements.

1. Total alkalinity of the material after drying for one hour at 150 to 155° C shall be not less than 58° calculated as Na_2O; equivalent to 99.2% of sodium carbonate (Na_2CO_3).
2. Hydroxide (NaOH) shall not exceed 0.1%.
3. Bicarbonate shall not exceed 0.1%.
4. Matter insoluble in water shall not exceed 0.25%.
5. Loss in weight on heating at 150 to 155° C for one hour shall not exceed 1%.
6. The total sulfur, calculated as sodium sulphide (Na_2S), shall not exceed 1%.
7. (a) Thirty grams of the light soda ash (grade A) shall have a volume of from 55 to 60 cubic centimeters.

(b) Thirty grams of the dense soda ash (grade B) shall have a volume of from 30 to 40 cubic centimeters.

The importation of copper sulfate in Bulgaria has shown a tendency to increase during recent years. Comparative statistics for the first six months of the past three years indicate receipts of 2,454 metric tons in the first half of 1925, 3,329 in 1926 and 3,070 in the 1927 season. The principal supplier is Great Britain; the principal purchaser the Bulgarian Agricultural Bank.

It is reported that a Swedish concern proposes to erect a calcium carbide factory at Dundalk, Ireland. A site of 20 acres appears to be required and the number of individuals to be employed is estimated at 600.

Fertilizer Use Limited In India

It has been estimated that over 200,000,000 acres are under cultivation in India. Notwithstanding the importance of agriculture, the small land owners use practically no fertilizer and the relative small quantity imported is for the European plantation owner, chiefly for the cultivation of tea. Imports are increasing, however, and the nine months ended December 31, 1927, reached 31,039 tons which exceeds the quantity imported in the entire preceding fiscal year and was double that of 1924-25, according to the Department of Commerce.

The principal item in India's fertilizer export trade is "bones and bone meal." The trade has increased from year to year and now exceeds over 100,000 tons annually. Small exports of ammonium sulfate during the past three years would indicate that the domestic production is being absorbed in Indian agriculture. In the table that follows, exports and imports are shown for fiscal years ended March 31, and for the first nine months of the current Indian fiscal year.

	1924-25	1925-26	1926-27	1927-28
	Long tons	Long tons	Long tons	(9 months) Long tons
Exports				
Bones and bone meal	70,987	84,297	99,155	70,867
Fish manures and guano	18,246	9,179	7,404	4,736
Ammonium sulfate	10,253	1,829	1,342	1,636
Horn meal	.....	4,279	4,304	3,753
Other fertilizers	2,301	4,336	5,475	4,258
Total	101,787	103,920	117,680	85,250
Imports				
Potassium chloride	.....	.....	4,509	3,411
Sodium nitrate	3977	3,963	6,070	7,210
Ammonium sulfate	203	4,724	2,684	2,149
Fish guano	2,648	3,956	3,181	4,039
Horn meal	.....	9	526	20
Other fertilizers (excluding oil cakes)	8,966	13,707	12,882	14,218
Total	15,794	26,359	29,852	31,039

Mention should be made of the Indian exports of crude potassium nitrate which are not included in the above table. India formerly enjoyed an extensive trade with the United States and Europe in this material but exports have declined in recent years as a result of competition from more accessible sources. Shipments have declined from 8,163 long tons in 1924-25 to 4,915 tons in 1926-27. During the nine months ended December 31, 1927, exports aggregated 4, 137 tons, two-thirds of which was destined to Ceylon for use as fertilizer. The home consumption for fertilizer purposes on tea estates is reported to have declined from 1,000 tons in 1923 to about 700 tons in 1926 owning to the employment of a mixture of imported potassium chloride and ammonium sulfate.

Further developments in the amalgamation of leading mineral color manufacturers which has been going on in Germany included the purchase by the Heyl-Behringer Farbenfabriken A. G. of Berlin, which recently increased its capital to 6,500,000 marks of the larger share of the stock of the Farbenfabrik Hammerschlag and Beyer of Zollhaus in the Wiesbaden district, according to United States Consul Hamilton C. Claiborne, Frankfort-on-the-Main. The latter concern operates its own mineral colors mines and produces special products which are of importance to the mineral colors combination to which the Heyl-Behringer belongs. The capital for the transaction was taken from the last Heyl increase.

Negotiations are continually being carried on for the consolidation of the minerals colors industry in Germany, but are much handicapped by the existence of a number of firms which are not incorporated as stock companies and whose quota it is consequently difficult to determine. This is said to have been the reason for the recent conversion of the Schroeder and Stadelmann "G. m. b. H." to an "A. G."

Lee Van Derlinden, Chicago, Ill., is appointed to succeed the late James A. Dowdy as sales manager, fertilizer department, Anaconda Copper Mining Co.

Italian Dyestuff Progress

By Asst. Trade Comm. E. Humes, Rome

The Italian dyestuffs industry has made great forward strides since 1914, and is now able not only to supply domestic needs of the more common dyes, but to provide a considerable surplus for export. There are a number of factories making their own intermediates. Among the more important manufacturers are: A. E. Bianchi & Co., with a daily output of about 5 metric tons of dyestuffs; the Italica, which manufactures excellent chrome and acid dyes, direct cotton dyes, basic dyes and a complete line of sulfur dyes. This company now employs 28 chemists as compared to 4 in 1914.

Another important manufacturer is the Materie Coloranti Bonelli of Cesano Maderno, which not only manufactures dyestuffs and intermediates, but also operates an electrolysis plant for the production of electrolytic caustic soda from which 3,000 cubic meters of hydrogen are obtained as a by-product in 24 hours. The electrolytic hydrogen is used on recently developed important manufacturing processes in connection with the preparation of benzidine, para-aminophenol, alpha-naphthylamine, para- and meta- phenylene and toluylenediamine, H acid, French, Cleve and Laurent acids and peri- and amino-salicylic acid. Likewise the problem of the transformation of nitro-benzene into hydro-azobenzene, without the aid of zinc or iron powder, has been solved by the use of the sodium amalgam prepared directly from the electrolysis of sodium chloride. In June, 1923, the Cesano Maderno plant alone was turning out about one ton of benzidine a day. At that time, however, the synthetic indigo and the anthraquinone dyes were not being made. The Cesano Maderno plants of the Nobelli now have an annual capacity of over 1,500,000 tons of synthetic indigo. Other vat dyes are also being manufactured, such as the yellow vat dye of the Industria Chemica of Melegnano and the black, blue and blue-black indanthrene which Belloni e Colli has recently put on the market, and in the preparation of which this company plans to specialize.

The Industria Chemica at Melegnano is a comparatively new concern which has attracted attention both at home and abroad for its excellent chrome dyes. Italian dye manufacturers are manufacturing not only sulfur dyes but have been successful with a number of acid dyes among which may be mentioned the light yellow, acid red and black, and tartrazine. Excellent basic and direct dyes are also made and most important of all is the progress made in the preparation of yellow, brown, and black chrome dyes. An outstanding example of the direct dyes is the diamond black P.V. of the Industria Chemica. When this domestic dye was put on the market for the first time, the price fell from 40 lire to 20 lire a kilo.

The Fabbrica Lombarda A. E. Bianchi, the Inca, and the Ledoga have also given special attention to the manufacture of chrome, aniline, and sulfur dyes. In Piedmont the Fabbrica Boletti & Co. was one of the first to produce sulfur dyes and lakes during the war. In 1919 this company combined with the Swiss Rohner. In this same district the Schiapparelli is producing aniline oil and sulfur dyes and the Industria Piemontese aniline dyes.

Special mention must be made of the S. I. P. E. Cengio in Liguria. This concern, which also controls a large number of gas plants distilling about 600,000 tons of coal annually, produces in the 24 hours 8,000 kilos of aniline oil, 2,000 kilos of H and beta-naphtol acid, 800 kilos of para-nitro-aniline, alpha-naphthylamine, etc. They also manufacture numerous nitro and chloro derivatives of benzene, toluene, naphthalene, phenol and aniline, and other important products used in the preparation of synthetic dyes, medicines, and explosives. The company also has a plant for the production of several tons of oleum daily. It also produces daily 2,000 kilos of 85-90 per cent. formic acid, 4,000 kilos of caustic soda, 3,500 kilos of chlorine, and 4,000 kilos of 100 per cent. sodium sulphide. The S. I. P. E. Cengio, the Bonelli, the Italica, and the Schiapparelli merged last year. The total output

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Italian Dyestuff Progress

(*Continued from page 471*)

of synthetic dyes manufactured by the group is estimated at over 3,600,000 kilos annually inclusive of sulfur black but excluding indigo.

Snythetic indigo is produced in Italy by one company only, the Fabbriche Italiane per Materie Coloranti Bonelli, a member of the group which includes the S. I. P. E. Cengio, the Italica, and the Schiapparelli, all of which are more or less controlled by the Societa Italiana del Gas di Torino. The Italian plant is located at Cesano Maderno and has a yearly capacity of 1,500,000 kilos of indigo in paste at 20 per cent. This production capacity is more than sufficient to cover present Italian consumptive needs, which are reckoned at approximately 600,000 kilos per year. The Cesano Maderno plant can be amplified by the addition of a few machines to permit a yearly production of 2,500,000 kilos. The plant as now functioning represents the very last word of equipment.

Synthetic Aromatic Chemicals

Italian production of synthetic aromatic chemicals of both coal tar and noncoal-tar origin is relatively small and entirely inadequate to meet the country's consumptive needs. Italy has an important industry for the distillation of real flower essences and the preparation of flavoring extracts from natural products, but Italian manufacturers of perfumes, flavoring extracts, soap, toilet preparations, and other consuming industries recognize the merits of the synthetic aromatic chemicals which are imported in considerable quantites. A limited number of the more usual synthetic aromatic chemicals from coal tar products is manufactured locally and include acetophenone and methyl acetophenone, amyl, benzyl, ethyl and methyl benzoate, amyl and methyl salicylate, ethyl and methyl cinnamate, benzoic acid, benzylidene acetone, bromstyrol, methyl anthranilate and methyl anthranilate, isoeugenol, cinnamic acid, cinnamic aldehyde, synthetic musk (A and X), nerolin and vanillin of coal-tar origin. Of the noncoal-tar aromatics terpenyl and linalyl acetate and ionone are produced. None of these artificial perfumery and flavoring materials, however, is manufactured on a large scale, as is illustrated by the following figures on production. No figures are available later than 1925, but the total volume of domestic production is insignificant compared to that of imports, and the domestic industry shows no tendency to increase its competition with the imported products. In fact, domestic production has declined rather than expanded despite protection afforded by import duties.

Production of Synthetic Aromatic Chemicals

	1923 kilos	*1924 kilos*	*1925 kilos*
Of coal-tar origin:			
Acetophenone	100	500	...
Amyl benzoate	100	25	...
Ethyl benzoate	100	25	...
Methyl benzoate	100	25	...
Amyl salicylate	...	1,800	...
Methyl	2,700	3,500	4,500
Benzoic acid	4,000	5,500	4,200
Benzylidene acetone	25	55	50
Bromstyrol	...	200	...
Ethyl cinnamate	10	10	10
Methyl cinnamate	...	500	...
Methyl anthranilate	...	300	...
Synthetic musk (a & x)	...	700	...
Nerolin	...	1,200	...
Vanillin	...	4,200	...
Of non-coal-tar origin:			
Terpenyl acetate	...	...	...
Linalyl acetate	350	1,450	...
Ionone (alpha, beta, gamma)	60	1,160	30

Tariff

The majority of the synthetic aromatic chemicals are classified under item 661 of the Italian tariff, that is, "synthetic perfumes and components of essences." This class of products is one of the few which pay an ad valorem duty when imported into Italy rather than the usual duty based on weight. They are taxed at

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ABSOLUTELY PURE BLOCK TINNED

for

Aqua Ammonia

SPECIFICATIONS

55 gallons—16 gauge Shell
14 gauge Head and Bottom

110 gallons—14 gauge Shell
13 gauge Head and Bottom

I-Bar Rolling Hoops

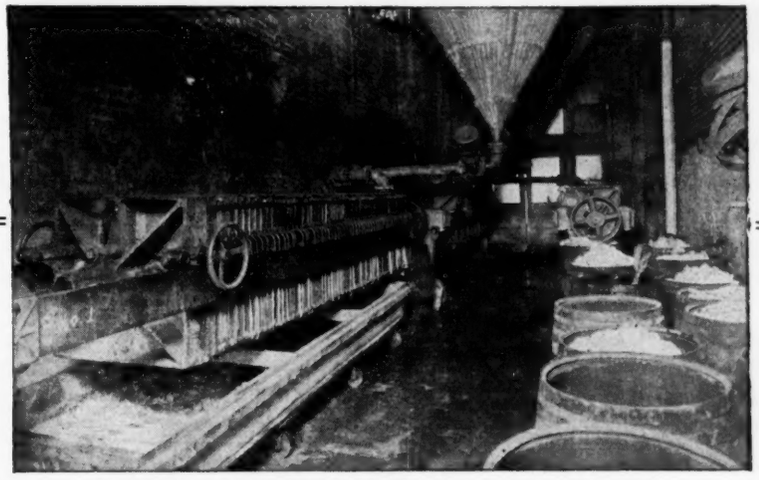
Complies with I. C. C. 5

ABSOLUTELY PURE BLOCK TINNED

JOHN TRAGESER STEAM COPPER WORKS

Grand Ave. **Maspeth, N. Y.**

Self-Evident Economy!



(Installation at The Hellwig Silk Dyeing Company, Phila., Pa.)

Shriver Filter Presses

In all industries which require filtering equipment, Shriver Filter Presses eliminate waste and increase efficiency in production. Economy is self-evident in every use to which a Shriver Filter Press may be employed. Down to the smallest unit, each part is built to serve and endure.

That, in a word, accounts for the ever increasing demand for Shriver Filter Presses. Their performance in all industries, from the filtering of linseed oil to the making of Rayon, justifies our statement that there is a Shriver Filter Press for every purpose! Our engineers will gladly help you with your filtration problem---without obligation.

T. Shriver & Company, 856 Hamilton St., Harrison, N. J.

The Chemical Market-Place

WANTS & OFFERS

Rates—All classifications, $1.00 an insertion for 15 words or less, additional words 5c each per issue: 10c for forwarding mail if box number address is used.

[Payment must accompany order—we cannot bill want ads.]

Address: Wants & Offers,
Chemical Markets,
25 Spruce St., New York

Business Opportunities

FIFTY DOLLARS REWARD for acceptable business idea or opportunity along chemical lines applicable to middle west by young industrial chemist desirous of venturing in own business. Manufacturing or sales. Must be a needed business service. Replies confidential. Send me the"how" and "why". Box 780, CHEMICAL MARKETS.

TO INVENTORS and promoters: Let us make up your product for you. We have steam kettles and plant equipment in excess of our present needs. Light manufacturing. Chard and Howe, 256 Front Street, New York, N. Y.

Will purchase interest in successful manufacturing plant. Advertisers are a reputable plant manager and an experienced research-development chemical engineer. Please indicate the nature and size of the business. Box 779, CHEMICAL MARKETS.

For Rent

Floors and Buildings for Rent—Close to Chicago's loop and adjacent to freight and express depots. Heated, lighted, elevators. Very low rentals. We can locate a space suitable for you. C. F. Durland & Co., 35 N. Dearborn St., Chicago.

Situation Wanted

CHEMIST, B.C., 35, American, married, 14 years experience; analytical, research and production work, organic and inorganic; desires position with reliable firm. Can make small investment. Box 782, CHEMICAL MARKETS.

CHEMICAL DRUG and sundry buyer associated with commission house for several years desires contact with firms in need of local representative. Is very conversant with domestic and foreign sources of supply Pharmacist, Room 1035, 15 William Street, N. Y. C.

CHEMICAL ENGINEER, 38 years, with 18 years experience in laboratory research, plant work, organic, fertilizer and heavy chemicals, desires to change position. Box 773 Chemical Markets.

PHARMACEUTICAL CHEMIST and Factory Manager of long experience in manufacture of Medicinal and Toilet preparations desires position with reliable firm. Box 776 Chemical Markets.

Help Wanted

SPANISH TRANSLATOR, one thoroughly familiar with commercial and chemical terms. Might be able to do the work on a part time basis. Write fully giving references and experience. Box 783, CHEMICAL MARKETS.

SALESMAN with considerable experience and established clientele to cover entire New England territory for well known chemical house. Splendid opportunity for right man to make permanent connection. Box 774 Chemical Markets.

SALESMEN with following among glycerin consumers wanted. An interesting proposition will be presented to the proper men. Advertiser just commencing operations in this field. Reply fully stating experience in confidence. Box 763, CHEMICAL MARKETS.

SALESMEN—for New York City and representatives for other cities for products going to following industries; toilet preparations, textiles, patent-medicine, flavoring extracts, tobacco, inks, garages, etc. To men with following in any of the above lines in attractive proposition is waiting. Box 767, CHEMICAL MARKETS.

SALESMEN and agents with following to sell special oils, highest quality, for leather, textile, paper, metal industries. Box 785, CHEMICAL MARKETS.

Equipment

RUBBER LINED TANK CAR
8000 gallon
Capacity 100,000 lbs.
Good as new—Low price to move quick.
ZELNICKER in ST. LOUIS
Send for our bulletin on Rails, Cars, Equipment, Steel Piling, Tanks.

FOR SALE—Five 100 gallon Glass Lined Tanks, Pfaudler Co. manufacture. Model A, with covers of copper, heavily tinned. Never been used. This is a real bargain. Address: Wood & Selick, Inc., 36 Hudson St., New York City.

Surplus Stocks

We purchase any quantity of surplus and discontinued stocks of—Chemicals, Oils, Waxes, Gums, Drugs, Coal Tar Products, Intermediates, Colors and Allied Products. Also By-Products and Residues. Box 775 Chemical Markets.

Raw Materials

GLYCERINE DISTILLED always offered advantageously to direct consumers. Box H.Z. 9035 Rudolph Moose, New York City, Graybar Building 2626.

TALLOW—Wanted to buy for soap manufacturing purposes tallow and grease; send samples and best quotations, f.a.s. American ports. Semach & Co., Genoa, Italy.

MANUFACTURERS OF BORAX are offered an outlet for their product to the continent. Address Dutch Trading Company, Z. O. Buitensingel 237, The Hague, Holland.

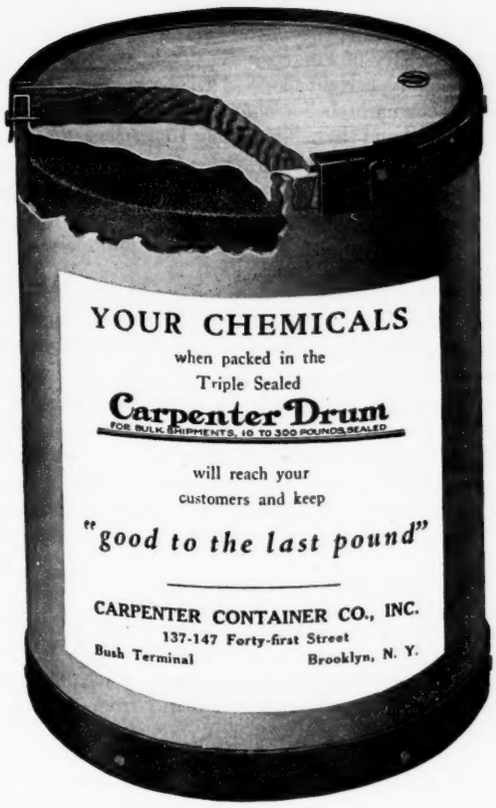
Several 1,000 Kg. Succinic Acid (Bernsteinsaure) to be sold. Ed. Pfannenschmidt A. G. Danzig-Schellmuhl Amber Varnish Works founded in 1861.

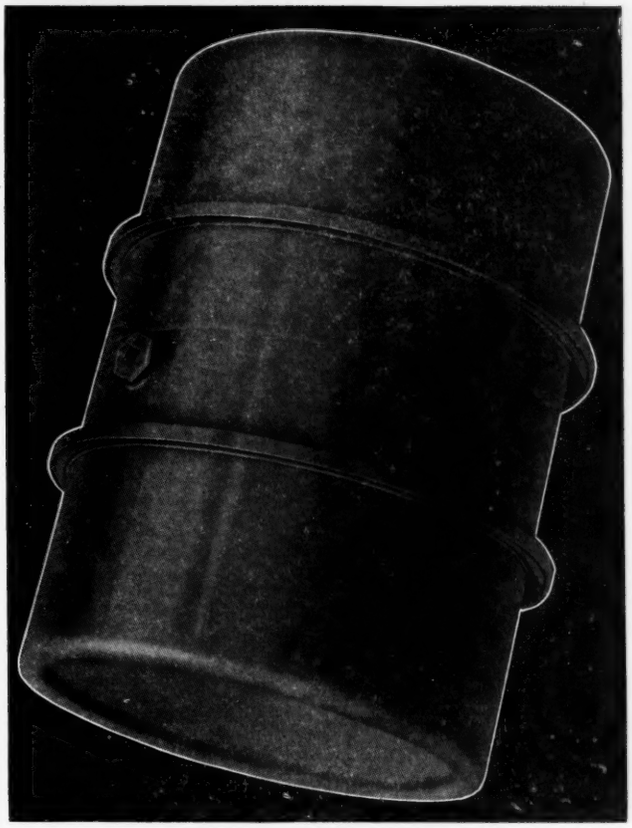
ROSIN—wanted, raw grade, packed in barrels-send samples and quotations. Address John D. Roupas, Patras, Greece—Cables, Roupas Patras A. B. C. 5th Edition.

Miscellaneous

WANTED—CHEMICAL MARKETS, Vol. 19, No. 4, 8, 10, 12, 16, 18, 20, 22, 24, 26, 28, 30, 32, 1926 issues. Library of Congress, Washington, D. C.

BACK VOLUMES of CHEMICAL MARKETS suitable for binding. Tell us what volumes you need to complete your library, and we will quote you. Address CHEMICAL MARKETS, 25 Spruce Street, New York, N. Y.





The New Hackney Chrome-Alloy Drum

for safer, cheaper shipment of nitric acid

NITRIC ACID manufacturers need no longer ship their products in fragile, expensive glass containers.

This new Hackney Chrome-Alloy Drum which complies in every respect with with I.C.C.—5 C., assures safer and decidedly cheaper transportation.

Chrome-Alloy is the best corrosion-resisting ferrous alloy ever produced in commercial quantities. Nitric acid has no effect on it. And none of the common corrosive agents—even salt spray—can cause "red rust."

In addition, this new drum is typical of the famous Hackney products. The upper and lower sections are pressed from single sheets. There are no chime or longitudinal joints—only one circumferential weld located between and protected by the securely fastened, extra heavy I-Bar rolling hoops. A post card brings the details.

PRESSED STEEL TANK COMPANY

1153 Continental Bank Bldg., . . Chicago
1329 Vanderbilt Concourse Bldg., New York City
5729 Greenfield Ave., . . Milwaukee, Wis.

Hackney
MILWAUKEE

GLASS LINED STORAGE TANKS

HY-SPEED Portable Elec. Mixers—clamps to any tank, mix quicker, cost less.

Protect your products perfectly. Eliminate contamination of metal contact. Insure a product unsurpassed for purity. We manufacture all types up to 150 gallons capacity, and carry a large stock in New York for immediate shipment.

Write for catalogs of tanks, filters, mixers, pumps, bottle fillers, etc.

ALSOP
Hy-Speed ENGINEERING Machines COMPANY
47 West 63rd St New York

Italian Dyestuff Progress

(*Continued from page 472*)

the rate of 15 per cent. of the official value. This official value is fixed by the Ministry of Finance. By virtue of a special agreement with Germany, certain specified synthetic aromatics, which include anetol, coumarin, heliotropin, eucalyptol, eugenol, ionone, iraldeine, terpineol and thymol, pay only 10 per cent. ad valorem.

A few of the synthetic aromatics, such as benzyl and butyl propionate and benzyl butyrate are classified under item 660 of the tariff, that is, "Esters for liquers and perfumes", and are subject to an import duty of 30 lire gold per quintal, equivalent to approximately 3 cents a pound.

In addition to the above import duties, these products are subject to a surtax levied on the amount of alcohol contained or used in their manufacture. This surtax is fixed by the customs at 1,200 lire per 100 kilos.

Benzoic acid and benzaldehyde are separately classified and are subject to an import duty of 75 gold lire and 240 gold lire per quintal, respectively, equivalent to 7 cents and 21 cents a pound. However, by Royal Decree Law No. 569 of April 14, 1927, benzaldehyde, benzyl chloride, and anthranilic acid, when imported for the manufacture of synthetic perfumes, are exempt from duty.

Imports and Market

Italy has an important domestic perfume industry; perfumed toilet soaps, flavoring extracts, and other products in which aromatic substances are used, are manufactured locally in large quantities. The extraction of essential oils from flowers and fruits is well developed, the former in Liguria and the latter largely in Sicily, but Italian consumers of perfumes and flavoring materials have not been slow in recognizing the advantages derived from the use of artificial and synthetic odors and flavors. Lacking a home supply, they have turned to foreign sources and imports of synthetic perfumes and aromatic chemicals have assumed considerable proportions, averaging between 80,000 and 100,000 kilos annually. In 1926 Italy purchased abroad 105,772 kilos of synthetic perfumes and components of essences, and 80,027 kilos during the first eleven months of 1927. France, Germany, and Switzerland, in the order named, are the chief sources of supply, smaller amounts being shipped by Great Britain, the Netherlands, and Japan. In 1926 the United States sold only 33 kilos of synthetic perfume materials in Italy, whereas during the first eleven months of 1927 more than ten-fold that amount was imported from the United States. This volume, however, still represented less than one-half or 1 per cent. of the total trade. The import trade in these products in 1926 was valued at over 11,500,000 lire. There is no reason why American manufacturers of synthetic aromatic chemicals should not increase their sales in this market and secure a more adequate share of the trade. It must, however, be born in mind that only a well-organized and sustained export campaign can be successful and French, German, and Swiss competition must be met. These exporters are entrenched in this market, and the trade is carried on along well organized lines. American exporters who wish to enter the field, must be prepared to meet price and quality of competitors. Credit risks should be carefully scrutinized in every case, and no great expansion of business can be hoped for on the basis of payments in New York. The European manufacturers offer two and three months' credit against accepted drafts and, in cases of known clients, even on open credit. The greatest leniency compatible with a sound business policy is recommended. The method which involves the minimum of risk and trouble to the exporter is that of direct sales to an exclusive distributor buying for his own account, but the number of Italian importers who have sufficient capital to buy outright on a large scale is limited. The bulk of trade in these products on the Italian market is done through agents selling on a commission basis, in many cases from stocks shipped on consignment.

Index To Advertisers

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Index To Advertisers

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"WE"—Editorially Speaking

Cheese and chalk are no more alike than the distributing problems of industrial raw materials and consumers goods. If you need to impress these differences upon yourself, compare your own mental attitude as a buyer of a new automobile or a new necktie with the psychology of the industrial purchaser of chemicals so tellingly revealed in the interview published in this issue with the purchasing agent of the United Piece Dye Works.

Norman Peterkin is the chemical buyer *par excellence*. He has sat on both sides of the desk. He knows the obverse and the reverse side of the chemical marketing picture. Quite unconsciously, but very sharply, he sketches the viewpoint of the buyer in a way that should be most valuable to whoever is selling chemicals or dyes. His keenly discriminating thoughts are worth analysing scrupulously. What he says about consolidated buying itself is almost a textbook.

If the methods of industrial marketing are widely different from the sales systems of consumers goods, the objective of both is the same, and the fundamental problem of rising distributing costs is common to both. Mass production cuts the costs of the individual unit whether it be a keg of borax or a balloon tire, a cylinder of chlorine or a carton of cigarettes. But so far we have not found equally efficient ways of slicing down the expenses of selling and delivering the individual sale of these increased units. Hence distributing costs rise in proportion to producing costs. The Professor of Marketing at New York University has put his finger square on some of the sore spots in our chemical marketing methods and indicated some cures. Chain stores and mail order houses efforts, similar to direct dealing in chemicals, to eliminate wastes; but Professor Collins indicates plainly that to cut off steps in marketing will not eliminate the different functions of packing, stowing, delivering, financing which are as much as selling a part of distributing.

Supplementing this broad analysis of the economics of chemical marketing are three articles written from the front line trenches of the chemical sales battlefield. When, at last month's meeting of the Salesmen's Association, Dr. Breithut distributed an intelligence test to uncover the secret thoughts of chemical salesmen, the answers to his first question would indicate that "African golf" looms large in their minds. Maybe so. It did in the front line trenches in France. But the General Staff was concerned with what the soldier thought of the War, and what the chemical salesman thinks of the chemical industry is as interesting. Common curiosity on this score will tempt any plant manager to read Mr. Murphy's thoughts. Common sense will make that reading profitable to a better understanding of mutual problems.

"The most human and most honest" is how a competitor described C. A. Burnett, summing up the kindliness and reliability of a man who for years has been a constructive leader among distributors in the Metropolitan area. Any notion however, that he is a sort of Victorian Don Quixote is dispelled by his big business visions for the future of the chemical jobber. Flatly he tells his fellow distributors that they must meet modern conditions in modern ways—or the economic services they render as local salesmen, stock-keepers delivery-men, and bill collectors will be taken over.

Two questions to which we find about two hundred answers are—what makes a chemical price and who controls chemical industry purchasing? The first, we conclude, is largely a matter of opinion. The second, according to J. George Frederick, is to be answered by facts which he believes can be determined by commercial research. He concludes that both for raw materials and equipment the man behind the scene—the executive in office and plant, whom the salesman very, very seldom reaches, has often decided far in advance upon the purchase and that even if he has not initiated this buying his approval must be won. The very obvious conclusion is that advertising in a business paper that reaches these desks beside which no outside salesman ever sits is a potent means of making industrial sales. Modesty forbids we should stress this point, or as the advertising adepts put it, "discuss the selection of the best medium."

Hampered on all sides by over-production, lack of protective tariff, competition from its more fortunately situated European neighbors, lack of capital and antequated freight rates which hinder tremendously shipments destined to points within its own borders, the chemical industry of Czechoslovakia is in none too healthy condition. Because of this state of affairs, the industry in Czechoslovakia—though it is by no means a new one, dating back to the middle of the eighteenth century—has not kept pace with developments in the chemical field throughout the world.

However, a good deal of constructive work is being undertaken each year by the Vereinigung der Cechoslovakischen Chemischen Industrie to eliminate the existing evils and this comprehensive review of the various branches of the industry and their present condition are presented with a view of outlining the possibilities of the country if freed from its unhealthy condition.

The pages of the preliminary Census of Dyes for 1927 published recently by the United States Tariff Commission, reflect through the figures contained therein, the increasing acceptance by the consuming industries both here and abroad of dyestuffs manufactured in this country.

Outstanding in the developments of the past year have been the decrease in the volume of imports, increase in the total of export poundage, a further reduction in the average selling price per pound of all domestically manufactured dyes and the fact that American makers now market up to 94 per cent. of all the dyestuffs now sold in the United States.

It is not with any spirit of false modesty, but with the purpose of making helpful suggestions to our many very busy readers that we pass along two testimonials. A department head of the Mathieson Alkali Works read the last issue of CHEMICAL MARKETS *on the train to Chicago* said, "It was the first time I ever read a chemical paper of any kind from cover to cover, and I found it so enjoyable and profitable that I am never going to miss a page of another issue of your paper." A major executive of Innis, Spieden & Co., read the same number at his *home one Sunday morning* and wrote "I spent a delightful two hours and cannot help expressing my appreciation of the quality of this magazine. I consider it the best general, chemical paper; the information is not only interesting and to the point, but very accurate and reliable. I like the position of your advertising and its general set up. Congratulations on the good work you are doing."

That Intangible *Something*

IN E B G Liquid Chlorine you receive more than a quality product. You gain more than the satisfaction experienced whenever a product is well serviced.

It is difficult to adequately convey it in words... this intangible something which each and every E B G customer receives. Yet there is nothing misty or unreal about the benefits derived from EBG Liquid Chlorine and the service which accompanies it.

Back of the product and the service is real, intelligent interest and cooperation... the spirit of EBG which invests your contacts with profit and a feeling of complete satisfaction.

Liquid EBG Chlorine

Electro Bleaching Gas Co.

PIONEER MANUFACTURERS of LIQUID CHLORINE

Plant: NIAGARA FALLS, N.Y.

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